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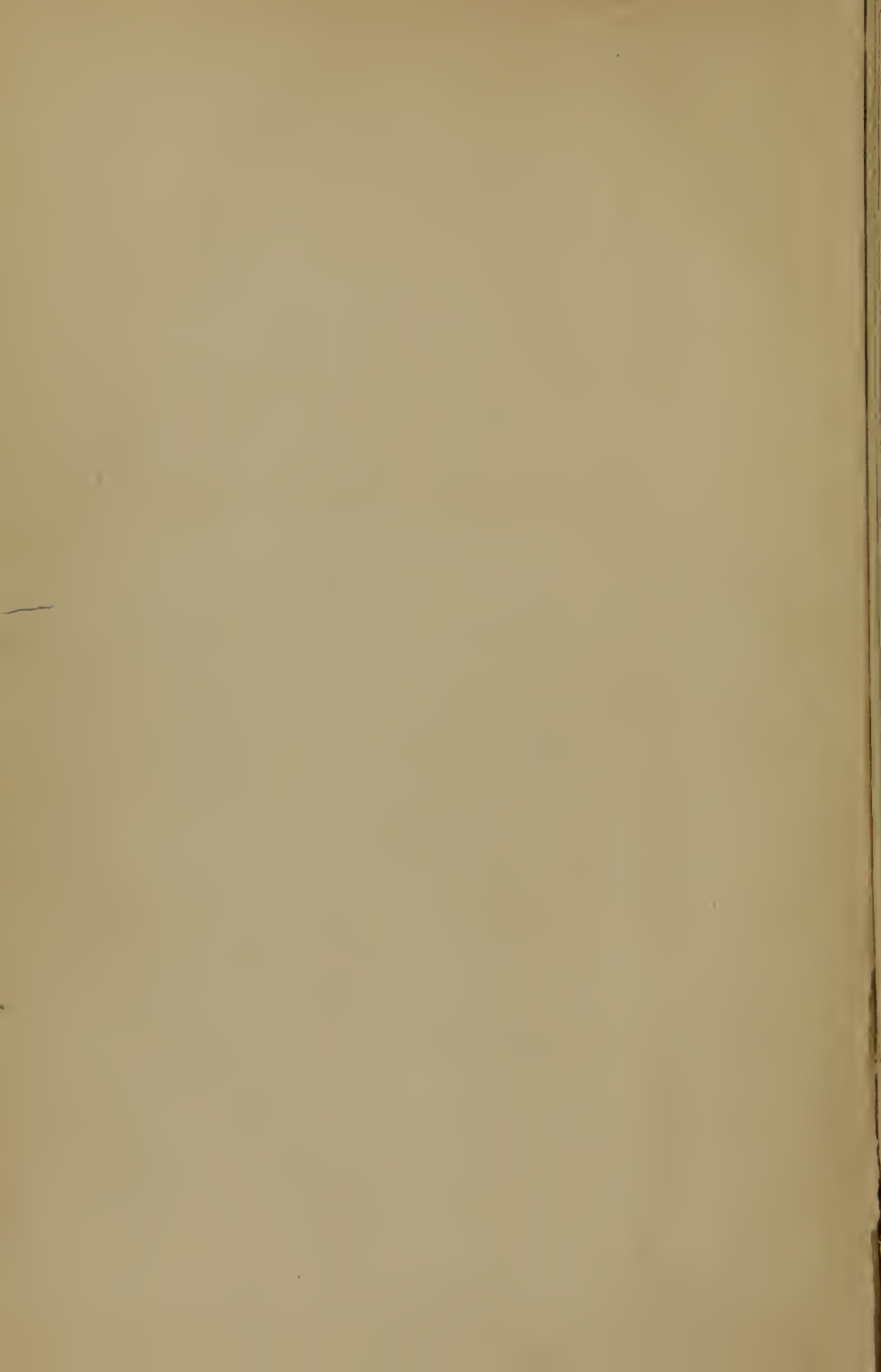
UNITED STATES OF AMERICA



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TABLEAU

OF THE

YELLOW FEVER OF 1853,

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WITH
TOPOGRAPHICAL, CHRONOLOGICAL, AND HISTORICAL SKETCHES

OF

THE EPIDEMICS OF NEW ORLEANS

SINCE THEIR ORIGIN IN 1796,

ILLUSTRATIVE OF THE

QUARANTINE QUESTION,

✓
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INTRODUCTION.

AMONG the memorable transactions of humanity, and the great events which have marked its eras and progress, as the catastrophies of the battle field, the downfall of kingdoms, destructive earthquakes, and remarkable appearances in the sidereal heavens, related in ancient history, Epidemics occupy but an obscure place. The slightest notice of yellow fever is no where found among ancient writers, although they have not failed to record, incidentally or directly, the time, place and progress of numerous epidemics, with more or less particularity, so that their characteristics may, now, after the lapse of so many centuries, be ascertained. It is now nearly three thousand years since the first temple arose in honor of Æsculapius. Four or five centuries later he was worshipped at Rome, where epidemics became both frequent and fatal. Homer opens his great poem by alluding to an epidemic which destroyed dogs, mules and men; another, 430, B. C., most destructive at Athens, was minutely described by Thucydides, himself having suffered from it; an epidemic which fell under the observation of Hippocrates, whose treatment of it was reckoned so successful that he was presented with a massive crown of gold, and the highest public honors. Five years later Athens was again visited.

Epidemics
B. C.

Rome.

Athens.

Many epidemics prevailed at Rome before our era. In 263 and 212, (at the siege of Syracuse) and in 131, B. C., the Roman and many other nations suffered from pestilential visitations, as mentioned directly or incidentally by ancient authors.

Near the commencement of the Christian era, Celsus—and in the next century Galen—gave the world their learned works on medicine. In the sixth century the plague was general; and in A. D. 565, small-pox was first described in France, as it was in the tenth century by the Arabian physicians, Rhazes and Avicenna. Before the middle of the thirteenth century, medical schools existed at Montpellier and Damascus. The Parisian college of surgery soon followed. Descriptions of scurvy and plica, soon after, were recorded. Books on medicine appeared in greater number, and some new diseases were described in the fourteenth and fifteenth centuries, such as whooping cough, the sweating sickness, and St. Vitus' dance, which later was epidemic upon the Rhine.

Epidemics
since the
Christian era.

During this long period, so briefly sketched, yellow fever does not appear to have been noticed until the discovery of America by Columbus. Had it prevailed in ancient times, its prominent features, so very remarkable, at least in its advanced stages, would doubtlessly have been recorded.

Omitting on the present occasion its post-Columbian history for about three centuries, in order to reach its advent in New Orleans, in 1796, it is intended not

to give its full history in this city, but to offer the reader a few (out of many) memoranda upon this subject.

Plan of this
Essay.

The sketches now submitted to the public are intended to include the obscurest period of the history of yellow fever in New Orleans, from its invasion up to the first third of the present century. Since the spring of 1836, I have been an active participator in, and a vigilant observer and a faithful recorder of, the sanitary history of this city, as I hope more fully to show on some future occasion. Except a view of the current epidemic, (not fairly history, because not yet elapsed, much less analyzed statistically) my voluminous details of all the great epidemics, since 1836, will necessarily be omitted for want of space in this limited memoir, as well as nearly all the data collected for the history of yellow fever for two centuries before its appearance in New Orleans. The waves of oblivion have already rolled over much of the sanitary history of New Orleans from 1796 to 1833. Of the fragments I have picked up, only a few can be given agreeably to my present plan. It is hoped that others, more fortunate, will be able to contribute more in illustration of this obscure though recent portion of sanitary history; otherwise, it will remain a blank forever. The epidemics since that of 1837 inclusive, have received or will receive such historical notice as will save them from oblivion, so that our successors will be able to give them a fair consideration, while posterity may find something to commend as well as blame, in the conduct, skill, and industry of the present Æsculapians.

Early sanitary
era of Louisi-
ana — impor-
tant facts.

The labor, if not the result of my researches into the early history of yellow fever in New Orleans, has been great. The few and imperfect notices and documents originally published, and now accessible, devoid as they often are of statistical requirements and numerical appreciation, are of small value—and even these are fast drifting to the shoreless gulf of oblivion. The more distinguished events of Louisiana, military and civil, the more dramatic phases of humanity upon the distant shores of the Mississippi—the exterminations of society upon which history is ever too prone to dwell exclusively, have found several able historians,* while the medical history, sanitary progress, climatic vicissitudes, topographical changes from forests to plantations—from plantations to cities—from swamps and palmetto lands, to sugar and cotton fields, have received little consideration during a most important period, when the Indian, Caucasian and African races first met and mingled in a boundless wilderness, diversified by vast rivers, plains, prairies, lakes, lagoons, swamps, colossal grasses, reeds and forests. The vital progression, health, longevity, as influenced by modes of life, clothing, lodging, crowding, building, exposure, labor, diet, temperance, cleanliness, bathing, domestic habits, social, educational, mental and physiological characteristics—all these must have produced results for good or evil which might guide the physiologist and the sanitarian in his reason-

Elements of
Medical his-
tory.

Martin.
Darby.
French.

*The late Judge Martin, and Mr. Darby, of Washington, have contributed most ably to the history and geography of Louisiana. Mr. French has done and is doing good service by the publication of old memoirs and documents; all of which, are, however, almost wholly sterile in sanitary, climatic and medical details.

Norman.

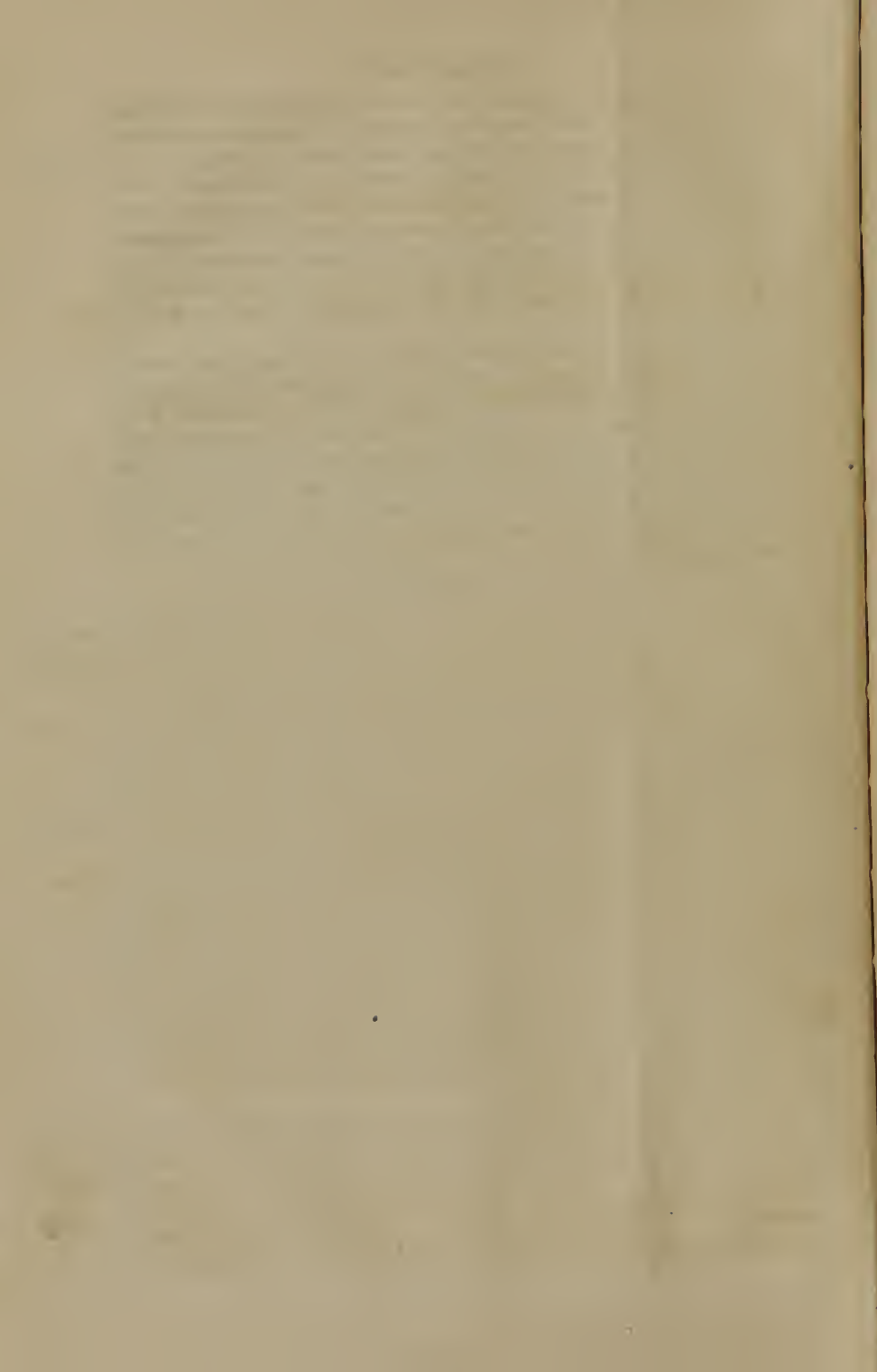
Mr. Norman's beautifully illustrated volume, "New Orleans and Environs," contains an interesting historical sketch of Louisiana.

Gayarré.

Among the historians of Louisiana, the Hon. Charles Gayarré, for the extensiveness of his researches and the opulence of his contributions, stands unrivalled.

ings. The philosophical sanitarian cannot be too cautious in assigning epidemics, and deteriorations of public health, to the sidereal influences—to the vengeance of Heaven, or to importations from the most distant nations. Contagionists have attributed our yellow fever (the paternity of which no nation is willing to own) to Siam, where it was never known, and for no better reason than that the country itself is at the uttermost end of the earth, and was less known than any other part except the very poles! It may be well to inquire, whether the elements of nature or the elements of society have altered during the last sixty years? Whether the stars are less simple, pure, chaste, moral, sober and regular now, than formerly! A change there is.

The reader of these desultory sketches, will, it is hoped, bear in mind that they are not intended to be strictly professional nor wholly devoid of that character. Principles and explanations, which, to a professional reader, may appear as the simplest truisms, may not prove such to all. While the writer claims no exemption from biases, he trusts he that is not a blind partizan, warring against contagion and quarantine, in regard to yellow fever. He has at least examined both sides of these questions, now paramount in the public mind, in their tendencies for good or evil to the present and future well-being of New Orleans, both in its internal and external relations.



TABLEAU

OF

YELLOW FEVER OF 1853,

WITH

THE EPIDEMICS OF NEW ORLEANS,

CHAPTER I.

FIRST APPEARANCE OF YELLOW FEVER IN NEW ORLEANS—ITS PRELUDES AND CO-INCIDENTS.

THE ravages of epidemic yellow fever—in central and insular America, at 1796.
no great distance—for two centuries, must have produced in New Orleans, from the
day the city was founded, a well-grounded apprehension of impending danger. In
the Northeastern portion of America yellow fever was older than New Orleans. It
had prevailed in Boston in 1691, 1693, 1795; in New York in 1702, 1743, 1748, 1762, 1791, 1793, 1795; in Philadelphia in 1699, 1732, 1741, 1742, 1743, 1744, 1747, 1762, 1793, 1794; in Norfolk, Virginia, in 1747, 1795; in New Haven, Connecticut, in 1743, 1794; in Providence, Rhode Island, in 1794; in Baltimore in 1794, 1795, and in many other Northern towns; in Charleston, ten times anterior to its appearance in New Orleans, during a period of ninety-four years.

Yellow fever had approached the site of New Orleans sixteen years before the 1796.
city was founded, having appeared at Biloxi, in 1702, ninety miles distant, a French
military station and settlement, founded by Iberville, in May, 1699; and also, at
Mobile three years later. The great prevalence of yellow fever, not only in the
new but the old world, as in Cadiz in 1705, 1731, 1733, 1734, 1744, 1764, must have
caused ceaseless apprehension of danger to the city, had the disease been of an
importable character, and the more so as the population consisted of various nations
and races engaged in commercial pursuits lying within the yellow fever region—a
population ceded from King to King, and sold from Republic to Republic, agreeably
to the caprice or cupidity of its masters

The year 1796, signalized by the irruption of yellow fever in New Orleans, 1796.
presented the most incontestable facts deserving of the consideration of contagionists.
New Orleans from its foundation (it may be repeated) had been closely connected
by geographical position, commercial intercourse, languages, and governments, with
both insular and continental America, where yellow fever had prevailed for cen-
turies under Spanish, French and English rule, yet always exempt up to this period.

Let us suggest this postulate: suppose that simultaneously with the first invasion of yellow fever, near the mouth of the Mississippi, a handful of immigrants, who had five years previously arrived in the midst of a vast wilderness, fifteen hundred miles distant, in latitude thirty-nine degrees North, nearly ten degrees North of New Orleans, at a time when there were no steamboats, when it required several months to reach the former by the river—I say, suppose that yellow fever should break out at both of these remote centres simultaneously, would it be fair to conclude that personal contagion could, under such conditions, be communicated? Such events did occur. The town of Gallipolis, on the Ohio river, thirty-nine degrees North latitude, settled in 1791 by immigrants from Paris, on an elevated diluvial oration then in the midst of a vast wilderness just beginning to be settled, was, in 1796, severely visited with yellow fever, attended with black vomit. The late Professor Potter, of the University of Maryland, struck with this remarkable isolated epidemic, (which he used to dilate upon in his lectures) took the necessary steps to investigate it the very next year after its occurrence, when Major Prior of the army an eye-witness, arrived in Baltimore from Gallipolis, and gave the professor a statement in writing, by which it appeared that half of the garrison and many of the French settlers died in ten days from this malady. This strange event in the desert excited great surprise at the time. The army report, by the surgeon-general, (p. 9) “refers to the journal of a voyage down the Ohio, in 1796, by Mr. A. Ellicott. This judicious observer was a witness at Gallipolis to the disease which raged violently, the fatal cases being generally attended with black vomit. ‘The fever could not not,’ he says, ‘have been taken there from the Atlantic States, as my boat was the first that descended the river in the spring. Neither could it have been taken from New Orleans, as there is no communication up the river at that season of the year.’”

First epidemic
in New Or-
leans.

Frasans.

Although an epidemic prevailed in New Orleans in 1769, the character of which has not been determined, yet it is highly probable that the disease was not yellow fever. Before a generation had passed away the yellow fever having, without doubt, appeared in 1796 as an epidemic, the numerous writers who asserted that the latter year ushered in this disease for the first time, in the city, could have informed themselves by consulting living witnesses as to the material facts of the case, and would have been contradicted, had they made erroneous statements as to the period of its invasion. A single authority, that of M. Frasan, has been quoted by several authors to show that it appeared first in New Orleans in 1795—among these is M. Moreau de Jonnès, though from his quotation from the former, 1796 will apply as well as 1795, while cotemporaneous writers agree as to the former. Although M. Frasan seems to represent the contagion-party of New Orleans, long since, his statement is important as fixing the date of the irruption of yellow fever in the city. He says (as quoted by Moreau de Jonnès, *Monographie*, 181) that in 1802, the people of New Orleans, among whom yellow fever had appeared six or seven years before, considered it as of foreign origin, that is, it had been imported from the United States. (Frasans. *Vue de la Colonie*, &c., 86, 91, Paris, 1803.) It does not seem that he was positive whether the first epidemic was in 1795 or 1796.

Relf.

It may be proper to mention that the late Dr. Drake, states on the authority of Richard Relf, Esq, of New Orleans, one of the oldest and most respectable Anglo-American citizens, “that yellow fever occurred, he himself being a patient, in 1791.”

(Dis. Valley Miss. 100.) It does not appear from this statement whether the disease was sporadic or epidemic; probably it was the former.

That the health of New Orleans anterior to the appearance of yellow fever was unsurpassed by any city in America, cannot be a matter of doubt, as I have shown in various publications, a summary of which may be seen in the New Orleans Directory for 1852, wherein numerous authorities, official and private, chiefly in the French language, are given, as Charlevoix, DuPratz, LaHarpe, Lozières, Duvallon, Robin and others. 1796.
Health of
New Orleans
in early times.

Dr. Lind, though at the expense of his theory of marsh-poison, allows "that the inhabitants of New Orleans suffer no inconvenience from their situation in marshes even during the rainy season;" (Hot Climates, 35;) a remark quoted, not to show swamps are good and convenient, but to show that in his day the city was salubrious; he carefully noticed the prevalence of yellow fever in Pensacola and other Southern towns during the last century. Lind.

The population of the city, by the census of 1785 was 4,980—by that of 1788 it was 5,338—by that of 1803 it had increased to 8,056. It is probable that it did not exceed 6,000 at the time yellow fever appeared in 1796. Of the mortality of that year no record has been seen by the writer. From that period to 1853 it is almost certain that several cases have occurred every year in the city, often only four or five.* Population.

In the year 1796, yellow fever appeared in Newburyport, Boston, New York, Charleston, Wilmington, West Indies, New Granada. Co-incident
epidemics.

Although it is not intended upon this occasion to give even a sketch of the methods of treating yellow fever, it may be proper to notice the method of cure proposed in New Orleans during the first epidemic, by a Spanish gentleman, Dr. Masdevall, physician to Charles IV, published in this city, in a work dedicated to the Governor, the Baron de Carondelet, in 1796: The doctor's remedy consisted of an antimonial mixture, *in viper-water*; 5 ounces of emetic wine; 1 ounce of cream of tartar; a tea spoon full for a dose. After the fifth day give an electuary of salt of wormwood, tartar emetic and Peruvian bark, in divided doses, the third and last remedy, (*lavement*) called the *blessed laxative*, was composed of antimonial wine, water, honey and oil. He rejected cordials, blisters and blood letting. He considered life as residing in the blood, as declared by Moses (Leviticus xvii, 14) and denounces venesection as dangerous for that reason, as life and health depend upon it. He maintains that his method is a true specific against all the fevers of Spain and America, as he knew from an experience of twenty years. His most Catholic Majesty commanded the Spanish physicians to follow his prescription and to prescribe nothing else. He blamed the physicians of Havana for not having adopted this "blessed" method of treatment. (Med. Rep. vi.)

*During 1796 the basin of canal Carondelet was excavated. The main body of the canal had been finished previously. Canal Caron-
delet.

CHAPTER II.

HISTORICAL NOTES OF YELLOW FEVER TO THE CLOSE OF THE EIGHTEENTH AND THE FIRST QUARTER OF THE NINETEENTH CENTURY.

1797. I have found no satisfactory record of an epidemic in New Orleans in 1797.*
 Philadelphia. In Philadelphia 1000, and in Providence 45 died of yellow fever. In the remote
 Providence. West, "at New Design, fifteen miles from the Mississippi river, and twenty from
 New Design. St. Louis, it carried off more than one-fourth of the inhabitants, although no person
 during the preceding twelve months had come to this village from any place at
 which the malady prevailed. As these facts are attested by Dr. Watkins, who had
 seen the disease in Philadelphia, and as identity of disease supposes an identity of
 cause, it is shown indisputably that fevers with the pathognomonic features of
 typhus icterodes [yellow fever] do occur in positions which forbid the assumption
 of importation." (Stat. Report, U. S. Army, 9.)

1798. The yellow fever which appeared in Boston, was, according to Dr. Samuel
 Dr. Brown. Brown, preluded by and accompanied with the following gloomy appearances of
 nature, or rather brown studies of the author, who gravely sets forth that "The
 common atmosphere, for the most part, was opaque and smoky, as if the earth's
 surface were undergoing a slow combustion. It seemed a heterogeneous mixture of
 particles in a state of opposition and propulsion; respiration frequent and unrefreshing.
 The sun, in mid-day height, appeared as a volume of blood, dark and angry. As it
 declined to the western horizon, its diameter widened greatly; and at an hour's
 height, or more, was almost invisible, or shrouded as with sack cloth. These ap-
 pearances, however, were not constant."

In New York the epidemic raged with extraordinary mortality. It has been
 estimated that more than one in thirty of the entire population died in a few
 weeks, mostly in August.

Epidemics in Philadelphia, Wilmington, New London, Chester, Huntington,
 Petersburg, Alexandria, (Va.) West Indies.

1799. The prevalence of yellow fever in New Orleans, in 1799, is referred to in the
 city journals twenty years subsequently.
 New Orleans. "Dr. Dow informed me," says Dr. Rush, "in his visit to Philadelphia, in the
 year 1800, that the natives and old citizens of New Orleans, who retired into the
 country during the prevalence of yellow fever in that city, the year before, [1799]
 were often effected by it, while all such persons as did not change their residence
 escaped it." (Rush, Inq., iv, 126.)

1800. Charleston, Philadelphia: "In no year since the prevalence of the fever was
 the desertion so general." (Rush, iv.) Boston, New York, Vera Cruz, West Indies
 Cadiz: Persons long resident in the city, as well as West Indians, were
 remarkably exempt. General alarm in Europe, particularly in Spain, France, and

*M. Victor Debouché, in his history of Louisiana—1841—says that yellow fever desolated New Orleans in the following years, namely: 1767, 1797, 1802, 1806, 1810, 1814, 1818, 1822, 1824, 1827, 1831, 1835, 1837—an enumeration which does not, in a number of instances, coincide with the most reliable authorities.

the Germanic States. Quarantine rigid against yellow fever generally called the Pestilence, American Plague, &c., &c. Rush's works translated into German.

Charleston: 134 died, including two children born in the city; the residue strangers exclusively. "Some instances have been observed of our youth, who have returned from a more northern latitude, after an absence of three, four and five years, and in one instance of twelve years, without contracting this inhospitable disease. The only exception to this remark are two; the one after an absence of five and the other of nine years." (Dr. Ramsay.) [Probably the two Creole children were born of unacclimated parents.]

1800.
Charleston.

In Havana, 9,977 perished from yellow fever.

Havana.
Valiente.

The Intendant of Cuba, El Sr. Don Pablo Valiente chartered the Dolphin to take himself, family and suite to Spain, touched at Charleston; and, having anchored in the bay of Cadiz, he went ashore with his party two days after, on the 8th of July. A month later the yellow fever appeared in Cadiz, whereupon Valiente was arrested upon a criminal charge for having imported yellow fever contagion from Havana and Charleston; the former he left in May; the latter he touched at June 2d, and left eight days after. At neither place was there any yellow fever. No yellow fever appeared on board of the Dolphin during the voyage, though three sailors had died. The Intendant, after eleven months' imprisonment, was acquitted at Seville, and was afterwards promoted by the Government, probably as a compensation for, his wrongs

Seville: out of 80,000 souls, 76,000 took the disease.

Cadiz: 14,000 fled, 57,499 remained, 48,500 sickened, 7,387 died.

Dr. Hosack, and many others, having adopted Dr. Mitchell's theory of septic acid as being the cause, and alkalies as the preventive of yellow fever. Lime water and the like were reckoned to be vastly important in neutralizing the septic acid, which was considered very corrosive, particularly after black vomit appeared. Dr. Cathrall, of Philadelphia, read a paper before the American Philosophical Society, on the analysis of black vomit, asserted that there was an acid in this liquid which is inert to the taste and smell, and harmless when swallowed. Black vomit having been "kept corked in a phial eight or ten days. it assumed an agreeable saccharine odor; kept two years in a state of rest, the flakey particles became perfectly separated—on agitation, it became immediately incorporated, and after remaining six months, showed scarce any disposition to separate. It is, as he says, neither blood nor bile, nor a mixture of the two." (Med. Rep. iv.) The writer has several specimens of black vomit, ten to fifteen years old, which does not appear to change from age.

1800.

In March, 1801, Baron de Carondelet, in an official document, set forth the importance of improving the topography of the city, so as to drain off into Canal Carondelet the stagnant waters which then abounded "near the city," and which he regarded as "the cause of much mortality;" a measure which he says "would put an end to putrid fevers," (Martin ii, 176-7) in which category he, doubtless, included yellow fever, which a few months later occurred as an epidemic.

1801.
New Orleans.
Carondelet.

Yellow fever in New Orleans: Dr. Snead, of this city, detailed the mode of treatment and criticised it as inefficient. (Med. Rep. ix.)

1801.

Yellow fever in Savannah, Norfolk, Norwich, Ct., New Bedford, Mass., in New

York where 140 died in October. In Charleston the celebrated Michaux suffered an attack; one-eighth of the unacclimated perished.

In Philadelphia, sporadic. (Rush, iv.)

In Havana: Mr. Morton, American Consul in that city, estimates the population within and without the walls at 95,000; mortality 2,366.

Dr. Oyarvida, of Havana, published a work in the Spanish language, to show that yellow fever is contagious, asserting its importation from the United States, avowing that when a person is exposed to it and escapes the disease, this escape is owing to the goodness of God.

In Vera Cruz, Jamaica, St. Domingo, Seville, Medina, Sydonia, (Spain) "on a high hill." Leghorn, Italy, 150 died daily.

1802. The government of the United States applied to the Spanish government for permission to establish a Marine Hospital at New Orleans, for American seamen, many having died there in a destitute condition.

1802. Boston—sixty deaths from yellow fever; at Portsmouth, New Hampshire, 10; Wilmington, Delaware, 86; Philadelphia, 250; Baltimore, unknown.

1802. Yellow fever at Charleston—96 deaths; more than half of the attacked recovered; none died under twelve years old; three died after a residence of eighteen months; a few strangers escaped without an attack; not a native white, black or mulatto was attacked. (Dr. Ramsay.)

Vera Cruz—428 cases admitted into the Hospital of St. Sebastian—60 died; in the city 1,500 of yellow fever.

The reign of
Septon.

Dr. Mitchell, of New York, (born in 1763—died in 1831) learned alike in physic, physics and politics, influential at home and abroad, exercised at the beginning of the present century an influence over the public mind, rivaling that of Dr. Rush. This great New York professor and member of Congress, having discovered the demon of all epidemics, particularly that of yellow fever, called by him SEPTON, that reigned by virtue of the principle of Acidity in the earth, air and water, causing corruption everywhere; whereupon he inaugurated Alkalinity into power with a scrub broom in one hand and a bucket of lime water or soap suds in the other, by which only "Grim Septon" could be conquered.

Alkalies as
preventives.

1802. Dr. Mitchell moved in Congress the appointment of a committee with the view of reporting on the purification of ships by alkalies, in order to destroy this pestilential septon. The Secretary of the Navy adopted the theory, or at least the practice, which latter he ordered to be carried into effect. Books, pamphlets and letters soon appeared against Septon, and for Alkalics. The next year an article appeared in the Medical Repository, having the title following: "Dr. Chalmers on the Acidity of the Atmosphere of South Carolina"! The fading of goods, the rusting of metals, and other effects of atmospheric acidity were gravely announced as indubitable proofs of this theory.

Air acid.

The yellow fever prevailed in several cities of the United States; 600 to 700 died out of 1,600 or 1,700 cases in New York, in August and September; 196 in Philadelphia; 200 in Alexandria, Virginia; prevailed at Catskill, among the hills of New York.

At Malaga, in Spain, 12,000 to 13,000 died; some accounts represent the number as low as 6,884.

Dr. Rush represents this as a year exempt from epidemic yellow fever in the United States, Charleston excepted. It prevailed, however, in New Orleans

In Charleston, 200 to 300 deaths. Prevailed in Winchester, Virginia.

Vera Cruz: total mortality 1,310. Yellow fever prevailed here, also in the West Indies; in Havana 4,766 died.

Leghorn: 6,000 left for Pisa, as did the French army, taking 180 yellow fever cases with them; no propagation of the diseases at Pisa. (Quar. Rep.) 1804.

Malaga, in Spain, out of 110,000 only 7,000 escaped attacks, and 26,000 died of this disease in four weeks. A more reliable statement (that of Arejula, cited Rep. Quar.) gives the population, in July, exclusive of the troops and prisoners, at 36,008; of these 4,548 fled, 18,787 sickened, and 11,486 died.

Carthage: out of 32,000 there died 14,940.

At Gibraltar, in a few weeks, beginning with August, out of a population of 15,000, no less than 5,733 fell victims, including civilians 4,864, military 869, that is, nearly two out of five. [Subsequent epidemics prevailed on this rock, as in 1813-14, 1828. During the latter year, from August to the 14th of January, 1,677 expired on this rock from yellow fever.]

Many cities of Spain, including Cadiz, were desolated. The population of Spain diminished one million! The official report of deaths from yellow fever amounted to 124,200 for the year.

It is remarkable that during the rigid quarantine which prevailed about the beginning of the present century in Spain, yellow fever raged more, and caused a mortality incomparably greater than was ever known before or since, in so much that various authorities might be produced in which the diminution of population in that kingdom for a single year has been estimated, as above, at one million, owing chiefly to the ravages of this disease. 1804.

As illustrative of the supremacy of the doctrine of contagion, it may be proper to mention that Carlos, King of Spain, by proclamation, conferred on Don Cabanellas and his two children, an annuity of twelve hundred dollars, making Don Cabanellas physician to the royal household, bestowing other privileges on him for having slept one night with his children in the bed whereon yellow fever victims had died in the Lazaretto. A number of galley convicts, in chains, who voluntarily accompanied the Don, for the night, had one year's punishment remitted from their penalties. The party consisted of fifty persons, who suffered no harm. (Med. Rep. x.) Great was the astonishment of His Most Catholic Majesty and his doctors. 1805.

New York: 302 deaths; 116 having been natives. (Med. Rep. x.) 1805.

Providence, R. I.: 30 cases; 10 deaths. (Ib.)

Philadelphia: 300 to 400 deaths. (Rush.)

New Haven, Ct., Gloucester county, N. J., Chester county, Pa. (Ib.)

Havana: H. Hill, American Consul at Havana, reported to the United States Department of State the names of 86 out of 100 American seamen dying in that city, all but one, of yellow fever. (Med. Rep. x.)

St. Anne's Barrack's, Barbadoes: of 278 men recently arrived from England, 70 died in twenty-three days, ending August 20th. (Bancroft.)

Quebec, near the 47th parallel of North latitude, founded (more than a century before New Orleans) upon Silurian rocks, which rise abruptly more than three hundred feet above the tide which washes its base, about 400 miles from sea, was for the first and last time invaded by the yellow fever, in the middle of August; but, September setting in very cold, the disease was not of long duration, though it was nearly as severe as that of the West Indies in malignity, especially among 1805. Quebec.

the troops, a company of 55 belonging to an English regiment perished except six. (Walsh, cited by Moreau de Jonnés.) This epidemic has been described by the usual criteria of yellow fever—haemorrhages, vomitings, yellowness, &c.

1806. No epidemic in the U. S.: In the penitentiary at Richmond, Va., yellow fever occurred. The Board of Health of New York recommended that certain parts of the city which had been much infested with yellow fever, should be reserved for warehouses only, not leased to families.

1807. Charleston: 162 deaths; Philadelphia 3; Savannah; New York 20 cases. (Med. Rep.)

1808. No epidemic except in the town of St. Mary's, in Georgia; half that remained in town died, including Drs. Hitchcock, Turner and Stowell. (Ib.) Savannah. (Townsend.)

1809. New Orleans: Mr. Gallatin, Secretary of the Treasury, reported the expense at the Charity Hospital for the treatment of sick seamen, at 75 cents per day, each, amounting to \$3,542 31. The number of deaths from yellow fever unknown; sporadic cases in Charleston, Philadelphia and Brooklyn.

1810. In Havana, yellow fever destroyed 4,305; Philadelphia 3 deaths; sporadic at Gibraltar; severe at Cadiz and Carthage.

Population of New Orleans according to U. S. census: city and suburbs 17,242; precincts 7,310 total 24,552.*

1811. New Orleans (Darby, Stat. La. 267.) Philadelphia 5 deaths. Amboy, N. J.

1812. Philadelphia 3 deaths; Cadiz, epidemic
Earthquake in the valley of the Mississippi; disastrous at New Madrid.

1813. Spain; Philadelphia 6 deaths.

1814. Philadelphia 7 deaths; epidemic at Cadiz.

1815. West Indies; Philadelphia, two deaths.

1816. Philadelphia, two deaths.

New Orleans. The city and state authorities, fully alive to the sanitary interest of New Orleans, enacted laws with this purpose, of the most stringent character. Those Sanitary laws of March 6th, 1816, and of March 18th, 1817, for extensive views, special enumerations, and exact descriptions of whatsover, were then, or have been since regarded as causes of disease, may be equaled but not surpassed by the present generation. One of these acts, covering fourteen pages, having twenty-four sections, exhausts the subject of Hygienic legislation—on paper, at least—and, with no apparent effect, as to the march of yellow fever. Mr. Darby says at this period "the streets are not yet paved."

Quarantine laws enacted in the winter or before the hot season. (The date not recollected.)

1817. Epidemic in New Orleans: Mortality of white male adults, 760; of white female adults, 63; a ratio of more than twelve times less than the former. Total mortality for five months 1142.

The Physico-Medical Society report the deaths, in August, 304; in September, 178; in October, 91; in November 91; in December, 74. But from these and various other data, I estimate the deaths from yellow fever this year at 800.

Natchez, 33° 31' N.: In a small population one hundred and thirty-four died of yellow fever.—Dr. Perlee. Dr. Cartwright refers the epidemic to local causes, as filth, a candle factory, offal, &c. (Med. Rec. ix.)

In Charleston, 270; total mortality 1249. (Mills' Statist.)

*Mr. Darby says that "New Orleans and suburbs contained, by the census, 17,242."

CHAPTER III.

QUARANTINE ERA.

Governor J. Villéré, January 6th, 1818, in his annual messege, says. "That during the course of the last summer the yellow fever had extended its ravages over the city, chiefly falling on new comers, but many of our citizens were its victims." He thinks that the disease was imported, and regards quarantine laws favorably. 1817.
Gov. Villere.

The yellow fever reappeared in New Orleans; mortuary tableau; deaths of white male adults 324; of female adults 81; white children 87; black male adults 219; black female adults 162; black children 277. The mortality augmented in each month until September, in which 166 died. Total whites 392; total blacks 658; grand total 1151.* 1818.
Mortality.

An act, approved March 6th, repeals the act establishing a Board of Health in New Orleans, the health officer and all laws for the prevention of the introduction of pestilential, malignant and infectious diseases; directs the sale of the Lazaretto and all its property; investing the Governor with authority to establish quarantine by proclamation at his sole discretion. 1819.

Yellow fever quarantine is founded on some known law of nature, on some ascertained uniform antecedent or leading fact or it is not. That yellow fever is produced by a cause or antecedent as invariable as the rising and setting of the sun is not the less certain, because it is wholly unknown, cannot be doubted. Even the games of chance, so called, happen in strict conformity to a changeless law as much as the winds, waves and eclipses. If importation be the antecedent of yellow fever in New Orleans, let quarantine against it be not only strict, but eternal. If the act of the Legislature of Louisiana in the winter of 1817, establishing a code of quarantine laws was wise, the repeal of those laws in 1818 was foolish. But it may be said that these laws had failed to prevent an epidemic during the summer of 1817. True. But why has the same course been pursued since, and why pursue it again as is intended now? The experiment has been often repeated in various countries and with like results—results mischievous, demoralizing, repulsive to humanity, and tending to increase the mortality of yellow fever during an epidemic. If the people of New Orleans could be brought to believe in the contagiousness of this disease, benevolent as they are known to be, the sick would be secluded, intercourse would be so restricted that many would perish from neglect. Of this more hereafter.

The Mayor and Council of New Orleans provide medical attendance, medicines, bread, meat, wine and the like for the sick poor. The preamble to the ordinance says: "Whereas, the disease actually reigning in the city of New Orleans is prin- 1819.
Aug. 24th—
charity.

In a letter from the late eminent Judge F. X. Martin, the historian, published in the journals of 1818, he gives a flattering account of the city as follows: Professional men make fortunes; land of ten miles above and below the city worth from \$2000 to \$4000 per acre; a single hand for a year \$750 to \$1000; "if born in the country or seasoned thereto, a slave is worth from \$1500 to \$2000 in ready money; a genteel house servant \$3000." Prosperity of the city. Martin.

*This is supposed to refer to one acre fronting on the river and running back 40 arpents or acres.

cipally among strangers lately arrived in this city, and not yet inured to the climate and that many of them are laboring under pecuniary distress, Resolved," &c.

Mortality. The city proper: had whites 13,604; blacks 13,592. The city and suburbs contained 45,968 souls. Mortality by months, beginning with January: 70—102—97—78—120—130—130—313—594—313—134—109. Deaths of negroes are distributed almost equally among the months of the year. By this tableau it appears that

Races. sixteen white men died for one white woman. Total mortality 2,190. These figures, taken from the report of the Medical Society, apply probably only to the city proper.

Nuttal. Mr. Nuttal, the naturalist, in his travels, estimates the victims of yellow fever for this year in the city at from five to six thousand, an aggregate greatly exceeding probability.

Army Report. In the official report of the Surgeon General U. S., it is said: "At New Orleans it was estimated that upwards of 3,000 died of yellow fever; and it was not until after the first of December that it was deemed prudent to return either to this city or Natchez. The interior of the country, in the Southern States, seemed to suffer in a corresponding ratio. In the West Indies the fever exhibited perhaps a still greater mortality." (10.)

Medical Society. The grand total mortality, according to the report of the Medical Society (supposed to include only the incorporated limits) is but 1,337; the males being 1,142; females, 195; blacks, male adults, 182; female, 168. Deaths of blacks little, if any, increased during the three epidemic months, while the deaths of white adults increased from 64 in July, to 485 in September.

The first two cases of yellow fever occurred May 7th and 12th; the last death December 9th.

1819. Dr. Dupuy De Chamberry, of New Orleans, in his historical sketch of yellow fever, as it appeared in this city in 1819, says:

"I formerly believed the yellow fever to be contagious, but since I have been in the midst of it, my numerous practical observations have never been able to furnish me with one proof of this much dreaded attribute. Indeed the result has been quite the reverse; and, I am now convinced that the disease is permanently fixed to the spot, and within the limits of the place which has created it. Not one case occurred beyond the limits of the city, during its prevalence in the years 1817 and 1819, that could be traced to any of our innumerable patients, although daily intercourse was kept up with people of the neighboring estates and plantations. A great number of our inhabitants who carried the seeds of the disorder abroad, seeking refuge from the danger at a distance, suffered an attack of the fever and died; but in no instance was it communicated to their friends. Fifty times have I had my hands and face besmeared with the putrid blood, black vomit, or fetid slimy matter of perspiration. Fifty times have I been immersed in the effluvia issuing from a dead or living subject, and never been infected by the disease. From extensive observations, I infer, that the yellow fever of this place is a disease, *sui generis*, the product of local causes, and neither contagious, nor exportable. Flight from the infected spot is the only preservative, and a distance of three miles appears to be quite sufficient to inspire the fullest confidence."

1819. to Yellow fever at Mobile: Five hundred remained in the city, of whom 274 died. At Forts Jackson, St. Stevens, and Claiborne. Prevailed on Tombigbee and Alabama rivers. (Med. Rec. iv, 161; Rep. Committee, Mobile.)

New York, Philadelphia, 13 fatal cases; Baltimore, —; Charleston, 176; total mortality, 1,092. (Mills' Statist.) In Havana, 5,162 victims.

Governor Villeré declares "that the scourge of war is preferable to yellow fever;" "that the city had been twice ravaged in three years," [1817 and 1819;] that it is contagious." He urges the Legislature to pass quarantine laws, in which he has the greatest confidence as a preventive. 1820.
January 5th.

Governor Villeré, a firm advocate for contagion and quarantine, in his message of November 22d, in relation to the then existing epidemic yellow fever, says: Governor's
message.

"All the Medical Faculty appear definitively to have adopted the opinion that the yellow fever, which, during the last year, has plunged us once more into mourning and desolation, is not contagious." But he argues: "During the months of August, September and October, there has been almost constantly in the prison of this distressed city, *a great number of prisoners*, and not a single one among them has been affected with the disorder." "If the yellow fever were natural to our climate, how has it happened that among such a number of persons heaped together in so small a space as the prison of the city, not a single one should have been attacked."* [Dr. Chabert, a physician of New Orleans, opposed the Governor's Dr. Chabert.

*The immunity in the prison will be inquired into in the sequel.

argument as to the prison, and maintained that the Creoles never take the yellow fever, though they do not shut themselves up to avoid it. (Friend of the Laws, Dec, 23d.)] Medical So-
ciety.

The Governor reviews the report of the Medical Society for the current year, dissents from its deductions, which he regards as those of all the faculty, and denies what he terms "*the constitutionality of the yellow fever.*"

New Orleans visited by an epidemic: Deaths from yellow fever in the hospital 1820.
82. First admission, July 21; the last, December 21.

Dr. Lambert treated yellow fever with repeated doses of opium and coffee. Opium.

Yellow fever prevailed in Middletown, Ct.; in New York; 150 died from August 21 to October 20; (some doctors affirm, others deny that the fever was yellow fever;) prevailed in Savannah.

The yellow fever having prevailed in Philadelphia, in 1820, for the last time for the period of thirty-three years, after a long and mortal cycle of at least twenty epidemics in about one century, it may be proper in this place to give a summary of its recent reappearance in that city, both as it respects its extent and its quarantine import. Whether the recent endemic in that city is to be regarded as the sad souvenir of times long past, or as the precursor of as sad times to come, neither the contagionists nor the anti-contagionists can tell.

The yellow fever which appeared in Philadelphia in July, 1853, some time after the arrival of the bark Mandarin from Cienfuegos, has been referred to by the citizens of New Orleans as a proof of the beneficial effects of quarantine in arresting the progress of contagion, but without any reason whatever. This matter having been investigated in the College of Physicians by Dr. W. Jewell, the following conclusions were arrived at and published in the Transactions of the College, which are here subjoined, from the Boston Medical Journal of November; (the fourth conclusion being a mere theoretical opinion, is omitted): 1853.
Philadelphia.

"1. That no disease of a malignant type was prevailing in our city previous to the arrival of the Mandarin.

2. That none of the seamen discharged from the Mandarin have sickened.

3. That none of the laborers employed in unloading the Mandarin have taken the disease,

* * * * *

5. That in no instance can the disease be traced to any individual, except among those who either visited or resided in the immediate vicinity of South and Lombard street wharves.

6. In no case has the disease been communicated to any person visiting, or engaged in attendance upon the sick.

7. Up to this period, not a single instance can be met with, having its origin to the south of where the Mandarin lay last.*

* * * * *
 "Dr. T. H. Bache stated that the number of cases of yellow fever admitted into the Pennsylvania Hospital had been *twenty-three*; of these *fourteen* had died, *seven* recovered, and *two* still remain.* These cases were placed in the common wards, without any attempt to separate them from, or prevent intercourse between them and the other patients, but in no instance had the disease been communicated to the latter."

The comments of the learned Dr. Reese* on these events are subjoined in a foot note, from his medical Gazette of December, 1853.

1851.

St. Augustine pine and Col. Forbes, says that the yellow fever which devastated St. Augustine, in Florida, chiefly during the month of October, "did not affect a single individual from the West Indies, nor a native of the country,† nor any one who had previously suffered from yellow fever. Forty or fifty deaths occurred among newly arrived immigrants before the alarm became general. Eleven deaths happened in one day. About 200 were exposed to the influence of the disease. Of this aggregate 140 were attacked, of which 132 died, including three blacks. Forty deaths took place in the garrison, in a body of 120 soldiers." (Townsend, 381-2.) The official army report asserts that this epidemic was "entirely confined to strangers, that is, all persons not enured to the atmosphere of the city by nativity, or a residence of a long series of years. Spaniards or natives,‡ resident in the country, who had the temerity to venture into the city during its prevalence, were liable to its attack, though in a milder degree than immigrants." (31.)

Army Reports

Immunity.

Prevailed in Baltimore.

Without anticipating what is to be said about the impending quarantine of New Orleans, it may be remarked that it is hoped the strict rules which were adopted during the era that has just been alluded to will be reenacted, so that if the quarantine doctors should become converted to non-contagion or to contagion, the law will, nevertheless, be enforced with unceasing vigilance and rigidity, because a single exception—the admission of a passenger, bale of goods, or letter,

*October 6th.

†How strange that the antiquated fable of contagion should still haunt the popular creed; and be made the hobby-horse on which as many flippant political doctors ride into places of profit, under that silly relic of barbarism known as the "Quarantine regulations," which are as powerless in keeping out yellow fever from the cities, in which it is generated by local sources of effluvia, as they would be in imposing restrictions against the waves of "old ocean rising in her wrath."

Even in Philadelphia, where a few score of cases have occurred in a district infected by an old and filthy common sewer, we find certain medical savans hunting for its cause in an old ship, guiltless of aught but bilge water, and this, with an obvious source of yellow fever under their noses. When will this ghost of contagion and importation be exorcised? Not while knaves can make money by spirit rapping, which belongs to the same category."

‡The apparent contradiction in these statements grows out of the indiscriminate use of the word country, which in Dr. F.'s account, means a native of the city, not a native of the rural district, as in the latter statement—all of which will be discussed hereafter.

might, by a single spark, ignite the whole magazine of humanity into a fever-explosion. Under former quarantines in this city, the resident physician and the health officer, took the following oath: "That whatever may be his opinion of the origin or infectious nature of the yellow fever, he will be as vigilant in preventing its introduction as if he knew it to be infectious and of foreign origin, and as careful in detecting and removing the causes which are supposed to produce it in this city, as if he believed it might originate here, and that he will well and truly perform the other duties of his office," &c. ; under the head of "other duties," a vast many things are included—one of which required the quarantining of all vessels, how healthy so ever they may be, and how healthy so ever may have been the ports whence they sailed, from the 15° S. lat. to 24° N. lat. ; a very liberal belt of 39°—covering the West Indies, nearly all of South America, the whole of Central Africa and Southern Asia. On the South side a triangular piece of America, and the Hot-tentot portion of Africa, and nearly all of New Holland remained free, provided they did not pass through the interdicted regions.

CHAPTER IV.

NEW QUARANTINE EPOCH—ITS EPIDEMICS—ITS RATIOCINATIONS AND INDUCTIONS,
LEGAL, MEDICAL AND SOPHISTICAL.

THE quarantine laws passed by the Legislature in February, 1821, creating a Board of Health with the most plenary powers, legislative, judicial, executive, pecuniary, and sanitary, modeled after codes the most rigid, and enforced by the heaviest penalties, were carried into effect in March of the same year. The quarantine ground, established at the English Turn, including incidental expenses, cost over twenty-two thousand dollars. The year proved salubrious—a result attributed to the strict quarantine. The Governor, in January, 1822, congratulated the Legislature upon the good fortune of New Orleans as being "*the healthiest city*" in the Union. But at the close of August, the yellow fever appeared; it augmented throughout September, but did not reach its culminating point until October, the month of greatest mortality, having amounted to 665, exceeding that of the preceding month by 83. Governor Robertson's next message breathed sorrow and despair. "It is," says he, "an idle waste of time for me to inquire into the causes, origin and nature of this dreadful malady." * * * "The State resorted to quarantine, under the expectation that it would add to the chances of escape from this dreadful visitation. If this hope be fallacious, if no good effect has been produced, if even a procrastination of its appearance has not resulted from the measure, then should it be abandoned, and our commerce relieved from the expense and inconvenience which it occasions."⁷

The course of events since the publication of the New Orleans Directory for 1852, renders it necessary to recapitulate, and fortify with additional proof, the postulates there laid down, as it respects the quarantine of 1821—the alleged importation of yellow fever, and the doctrine of contagion, advocated recently, as being proved by the events of that period.

In 1823, the Committee* of the House of Representatives on quarantine laws

*F. Grima, Esq., was chairman of the committee.

reported that "during the last year, [1822.] notwithstanding the *strictest compliance with those laws*, our expectations were frustrated at the very moment when we thought we could indulge the hope of the most complete success. The season was far advanced, and in the month of September this metropolis enjoyed the most perfect health, when the yellow fever made its appearance."

Observe, that this report was made by a committee altogether in favor of quarantine. They honestly acknowledged its failure, but recommended its continuance in the most rigid form, because it had not been tried sufficiently long, and because other States had similar regulations! The committee avow their belief in the contagious nature of yellow fever, and even adopt the opinion of the Board of Health expressive of its importation from Pensacola, through the Bayou St. John.

The report of the Board of Health to the Legislature, dated January 15th, 1823, brief, dogmatic, and unsatisfactory, holds the following language concerning the epidemic of the preceding year, (1822) :

"The researches made by the board at the commencement of the late epidemic, lead them to believe that the yellow fever *was imported* towards the end of August last, by a vessel from Pensacola, arrived at the basin of Canal Carondelet; and attention was first attracted to the disease in a family by the name of Lynch, passengers in said vessel. This family, of which every member but one fell victims to the yellow fever, had removed to Bienville street, when the disease first spread, and from here extended through the city."

"The Board of Health believe it their duty to do away with the impression made by interested persons, to induce a belief in the inutility of the powers which you have so wisely conferred on the board, for the establishment of quarantines, which these persons wish to see destroyed." * * * *

"This opinion is diametrically opposed to that of the Board of Health, who believe that the yellow fever is contagious, and that the establishment of quarantines is necessary to prevent its introduction." * * * *

"The unacclimated were the sole victims of this scourge."

The Legislature says that the city was perfectly healthy until the month of September—the Board says until the close of August, when the Lynch family having arrived from Pensacola, communicated the disease to the inhabitants of Bienville street, and thence to the whole city.

Truth is one—error legion This same Board the previous year, in an official manifesto, dated September 4th *, gave a very different account of the origin of this epidemic, charging the disease to the sun, the weather, and fatigue, and never so much as hinting that the poor Lynches had introduced contagion into the city, which latter, saving five yellow fever deaths, "never was more healthy." The Board testifies to the "*strictness of the measures*" (or quarantine then existing) "will check its progress."

This document is a melancholy proof of the inconsistent and contradictory opinions and actions of men unwilling to relinquish power, who resort to the sun, &c., to account for the origin of the fever; then they fly to contagion; now misleading the public by stating that there are but five cases having "the usual symptoms," and then, saying that their "*strict measures will check its progress*,"—thereby jeopardizing the lives of a whole city upon the supposition of the contagiousness of the disease! What can be more criminal in a Board of Health, whether its

* See the sequel.

members believe in the contagious, or local origin of yellow fever, than the suppression of truth, except it be the promulgation of *falsehood*? Seclusion in the one case, if contagion be true, and flight in the other, if the fever be of local origin, might have saved hundreds of lives, if adopted early enough. The late Dr. Townsend, of New York, a consistent contagionist, in a work on yellow fever, published in 1823, avers that facts known in that city "show that the disease actually prevailed in New Orleans *at least a month anterior to this meeting of the Board of Health.*" (313.) He says "that from information derived from various sources which may be fully relied on, yellow fever broke out in New Orleans as early as the *beginning or middle of July.*"

This document* of the New Orleans Board of Health, subjoined in a foot note, is given *in extenso*, inasmuch as it ignores the Lynch family, and confirms the report in the Legislature as to the *strictness* of quarantine, now doubted after a lapse of thirty years. The exposition of the Board subsequently adopted, asserting the importation of contagion by the Lynches, is virtually contradicted by facts recorded in the Official Report of the Army by the Surgeon General, published in 1840, from reports of Medical officers. Surgeon McMahon, himself a sufferer from yellow fever, at Pensacola, in 1822, says "that on the 7th of August, a young lady, who had recently arrived from New Orleans, died with the black vomit. Her attending physicians, Drs. Elliott and Bronaugh, had no suspicion of the real character of the disease, until this last harbinger of death made its appearance." Five days afterwards two died: "between the 13th and 20th," says the doctor, "upwards of thirty deaths took place. The disease now spread rapidly. Out of a population of 1000 souls, upwards of 200 have already become its victims. On the 26th the troops evacuated the town. Up to this period their health remained unusually good.* * * Among its first victims was Dr. Elliott, an officer whose loss cannot be too much regretted."

Now all the parade of the Lynch family as having been the importers of yellow fever contagion is perfectly futile, as it would be to argue importation by the young lady just from New Orleans; both of these arrivals were coincidences, not causes of the two great epidemics. During 1821, the year before the arrival of the Lynches, seven persons affected with the yellow fever entered the Charity Hospital—and in the two preceding years the number was much greater—for 1820, eighty-two, and for 1819 seventy-one—enough, surely, without the Lynches.

* BOARD OF HEALTH, NEW ORLEANS, September 4, 1822.—"At a meeting of the Board on Tuesday, the 3d of Sept., 1822, the following address was adopted and ordered to be published:

"It becomes the duty of the Board of Health to state to the public, that five cases of fever have lately occurred, in which all the symptoms which are usually exhibited in the yellow fever, were observed. It is hoped, from the favorable state of the weather, that the disorder will not spread, as it has not occurred except in persons who had undergone great exposure to fatigue, and had been much exposed to the sun. The precautions taken to render more strict the measures adopted to prevent all communication between this city and the places abroad and in the vicinity where the disease prevails, will check its progress. This hope is more confidently indulged from the circumstances of no new cases having been reported to the Board as having originated within the last two days. With the exceptions noticed above, the city never has been more healthy, and it is believed that the mortality during the last three months has not much exceeded that which took place during the three months preceding them.

"I certify the foregoing to be a true copy from the minutes. H. K. GADON, Secretary."

Although it has been said that no admissions for yellow fever took place in 1821, when quarantine prevailed, yet I have found, as above stated, seven admissions: M. Burns, January 1st, recovered; J. Gildon, January 3d, died 10th; B. Johnson, March 3d, died with black vomit ten hours after; L. Omeline, June 14th, cured; J. Henderson, June 18th, cured; John McCarty, June 20th, cured; J. P. Jacob, August 7th, died next day.

Dr. Davidson, himself a quarantinist, gave the following account of Jacob's case at a meeting of the Board of Health, August 10th, 1821, as reported in "The Friend of the Laws":

"Case of J. Jacobs, reported by Dr. Davidson, on the part of the Board: The symptoms and its fatal termination on the fifth day, together with the appearances observed on examination of the body after death, presented strong evidences of its near approach to yellow fever; J. J. was a stranger to the climate, and had been exposed to the heat of a burning sun and hard labor for the last three weeks on a raft of logs on the bank of the river."

The records of the hospital, and these somewhat reluctant admissions of the doctor, are conclusive. Now I could offer a list of yellow fever cases admitted into the Charity Hospital for every year since its records began, taken after a most careful examination of the same, not excepting that most salubrious year 1821, which preceded the advent of the Lynches in New Orleans, in which quarantine was established. As the continuity is unbroken, there is no need in the world that the Lynch family should arrive—others having had the yellow fever sufficiently to furnish contagion enough for the whole city every year. There was no logical connection between the Lynch family and the epidemic of 1822. Had the family never visited the city, all the previous and subsequent analogy goes to show that a number of cases, if not an epidemic, would have occurred just as in other years, and about the same season—just as an epidemic occurred in 1822 at New York, Augustine and many other places in both hemispheres.

This alleged importation, so fruitful a theme with the contagionists of 1822, and of the present period, is completely disproved by Dr. Heustis' work on Epidemic Fevers, published in Cahawba, Alabama, in 1825. At page 421, he says, in his account of the yellow fever at Pensacola, in 1822, before the arrival of the young lady from New Orleans, above mentioned, that "it was pretended by the advocates of imported contagion that the fever was brought in a vessel which arrived from New Orleans about the beginning of August. The captain of this vessel was among the first that sickened and died of the malignant fever; and this after his arrival in Pensacola." Dr. Heustis expressly states that the young lady from New Orleans arrived subsequently to the captain! Dr. Heustis, also, maintains in view of all these events, that it would not be "reasonable for the advocates of quarantine laws to suppose that where those salutary regulations are *so strictly enforced as they are in New Orleans*, that the disease could be imported from that Eden of health. The opinion of one of the most respectable physicians in Pensacola, was, that the disease originated entirely from local causes. Such also was the conviction of the Board of Health."

Although the present investigation is not intended to be history of yellow fever anterior to its invasion of New Orleans, it may not be improper to remark that **this disease appeared in Pensacola in 1765, when, and where a British regiment lost**

one hundred and twenty men, and eleven out of twelve ladies by yellow fever. (Lind on climates, 119.)

Dr. Townsend of New York, upon the authority of Mr. Barber, of Pensacola, and the public journals, states that the population of Pensacola, which was one thousand, was reduced by flight on the breaking out of the epidemic to four hundred, out of which number two hundred and eighty died of the fever. (249-50.)

The logic of 1822, founded on equivocal facts, weak then, still more diluted now by the stream of time for thirty years, can have little potency.

While the facts, arguments and quarantine operations were still fresh, the public felt convinced of the evil of this system of yellow fever prevention, and determined to petition the Legislature to abolish the quarantine laws: accordingly,

On the 23d of January, 1823, a large public meeting took place, in which it was moved and carried, "*that the late epidemic had tested the total inefficiency of the quarantine laws and regulations; we consider them not only useless, but in the highest degree oppressive and injurious to the commerce of this city; and that application ought to be made to the Legislature for the purpose of having them annulled.*" A memorial was addressed to the Legislature accordingly for that purpose.

The Legislature, however, took no decisive action upon the matter. The quarantine continued in force. The health of the city was good.

Probably in no year since the first irruption of yellow fever in New Orleans were the cases of this disease so few as in 1823, two cases only having been recorded in the books of the Charity Hospital: James Holden, Irishman, admitted September 11th, and died two days after with black vomit; John Hall, aged seventeen, born in Maryland, last from Red River, admitted August 23, concerning whom, I found the following record: "A well-marked case of yellow fever removed to the hospital with black vomit, taken out of a flat boat, laden with hogs, at the mouth of the Red River, by the steamboat Eagle"—recovered.

The yellow fever prevailed in August and September at Port du Passage, "seven leagues east of Bayonne—one of the finest ports in Europe—well fortified by nature and art, and covered towards the land by high mountains and rocks, communicating with the sea by a small passage between two rocks, affording passage but to one vessel"—a locality represented to be unsurpassed for general salubrity. (Dr. Jourdain.) 1823.

Natchez, says Dr. Monette, was more severely visited than any other city of its population, 320 having died of yellow fever. Dr. Cartwright,* then of Natchez, now of New Orleans, and Dr., now Professor Merrill, of Memphis Medical College, gave highly interesting histories in the Medical Recorder, and in the Philadelphia Journal of Medical Sciences, concerning a great epidemic at Natchez in 1823, which the latter affirms "took place under circumstances that wholly precluded the possibility of its importation." 1823.

"The town of Washington, six miles distant," says Dr. Cartwright, "was crowded with citizens, the sick and the dying who fled to it, yet in no instance did the inhabitants of Washington take the yellow fever unless they had breathed the atmosphere of Natchez. A daily and free intercourse was constantly kept up be-

* Dr. afterward Professor Calhoun, pronounced Dr. Cartwright's paper on this epidemic "the most interesting paper ever submitted to the public." (See Amer. Med. Recorder.)

tween the two places. It was two weeks after the flight of the inhabitants of the city, before Natchez under the hill was attacked."

At Fort Smith, Arkansas, 35° 22' N. lat., "yellow fever of a high grade prevailed," without a suspicion of exposure to contagion. (Off. Rep. Army U. S.)

New Orleans never had been more healthy for a quarter of a century—a circumstance upon which the Governor congratulated the Legislature in his message of January, 1824, in which he proclaims that New Orleans was free from "*all contagious diseases*." But January differs from September, as the sequel will show.

In his message, dated Sept. 11th, 1824, Mayor J. Roffignac gives the following exposition of the causes of yellow fever, in which contagion has no place, without alluding to quarantine, which was then in force, and which had afforded no protection; he proceeds to enumerate measures that have at least the advantage of being comprehensible and useful in an economical as well as in a sanitary point of view:

"The opinion of professional men on the primary causes of the insalubrity of New Orleans, tends only to confirm the idea which must occur to the mind of every attentive observer, on looking at the topographical situation of our city, to wit:—that those causes are of two kinds; the one arising within, and the other without the city itself, and that both ought to be counteracted.

"The internal causes are, 1st. The filth daily created in a populous city. 2dly. The low grounds and pools where stagnant water lies, the wooden gutters, constantly wet and fermenting under the rays of a torrid sun. 3dly. The want of privies in most of the populous districts, which renders it necessary to recur to the disgusting and dangerous use of tubs.

"The external causes are, 1st. The marshes lying North and West of the city, uncovered but undrained, and deprived, by the cutting down of trees, of the shelter formerly afforded to them by the shade of a luxuriant vegetation for which the very miasms that now spread death and desolation among us, were a source of life and vigor. 2dly. To the South and East, the Mississippi, which in its periodical retreat, at the hottest season of the year, leaves on its banks a great portion of the filth, which has been thrown into the current, but is brought back by eddies. 3dly. The winds, which at the moment we feel most secure, may, as was the case in 1822, convey to us the deadly effluvia of the dangerous spots which they sweep in their course. Such are, gentlemen, &c."

On the 15th of November, of this same year, the Governor in his message to the Legislature, notwithstanding his exultations at the beginning of the year at the exemption of New Orleans from *contagious diseases*, says, "New Orleans has been again subjected to the dreadful scourge," and suggests the expediency of closing the business season in midsummer, and recommends a general flight to the unacclimated.

The quarantine had been tried for three years, and yet two epidemics had occurred. The contagionists began to waver, and the joint committee of both houses of the Legislature, disagreeing on quarantine, were discharged from the consideration of the same on the last day of November, 1824.

Experience which is ever opposed to false theory convinced the public that quarantine was not only useless but supremely mischievous in a city so exclusively commercial that a free, untrammelled trade, with freedom of ingress, egress and progress is not simply useful only, but a social necessity, involving the ques-

tion of subsistence or starvation. Accordingly on the 19th of February, 1825, the Legislature repealed the quarantine laws which it had enacted just four years previously—at the same time the quarantine grounds were directed to be sold. During the eight years that followed, without quarantine, the yellow fever diminished. It never equalled that which took place under the strict quarantine of 1822, when according to some authorities 2,000* died of that malady, although the records which I have examined, show only 808—a number sufficiently appalling in the comparatively small population then resident in the city, especially during the hot season; the whole reported mortality for the three months ending with October being 1,362. The ratio of mortality in the Charity Hospital was enormous—out of 349 admissions, 239 deaths, and only 98 cures took place. The maximum mortality upon one day rose to 80—of yellow fever to 60.

In New York yellow fever carried off 243, out of 414, the number attacked.

1822.
New York.

CHAPTER V.

GEOGRAPHICAL TABLEAU OF YELLOW FEVER IN 1853.

The geographical area of yellow fever in 1853, compared with former invasions, was greatly extended, including Florida, Alabama, Louisiana, Mississippi, Arkansas and Texas—six States of the Union of vast territorial expansion, consisting of alluvial, diluvial, and tertiary formations, valleys, dry prairies, elevated plateaux, irregular terraces, low undulating hills and bluffs, and pine woods, interspersed with bayous, lakes, shallow basins, shaking prairies, large bays, dense cypress swamps, cane brakes, colossal grasses, inundated plains—a region undisturbed by volcanic action, where the geological or telluric causes of disease, if such be really regarded as causes, must be nearly uniform. Of these States five are washed by the almost tideless Gulf of Mexico, presenting a vast depressed, marshy, sandy, shelly, rockless littoral, which curves from the Rio del Norte to the peninsula of Florida, deeply indenting the temperate, yet approaching the torrid zone, having low outlying islands in front, and numerous great rivers flowing through the back ground, bringing detrital matter from the high lands and primitive formations of several mountain chains, with tertiary limestones and coral reefs trending along its eastern portion upon the Floridian peninsula.

1853.
Geological
tableau.

As immense importance has always been attached to the topography of yellow fever, which has been generally attributed to swamp-exhalation, it will be necessary to take a closer view.

The elevated zone called the bluffs, a broken diluvial plateau, touching the Lakes Pontchartrain and Maurepas on the South, where it is most depressed, running north between the Pearl and Mississippi rivers; the eastern shore of the latter for hundreds of miles, with some interruptions, is overlooked by these impending terraces, which sustain forests of colossal magnolias, pines, oaks, liquidambers, &c.—a platform which sundry learned medical writers have indicated as a secure retreat from yellow fever, although neither the past nor the present justify this theoretical view. The epidemic of 1853 raged fully as much in this region as in the most depressed plains among the vast cypress swamps and salt water marshes of littoral Louisiana.

* The Rev. Timothy Flint who was in New Orleans in 1823, estimates the mortality at 2,000.

The epidemic was most fatal in this region, from its Southern border upon the Northern shore of Lake Pontchartrain at Madisonville, Mandeville, Louisburg and Covington, to the higher lands of Baton Rouge, Clinton, Port Hudson, Jackson, Bayou Sara, St. Francisville, Fort Adams, Natchez, Grand Gulf, Yazoo and Vicksburg, not sparing the little villages of the pine forests.

Topography. Thus the towns of Louisiana, Alabama, and Mississippi States, elevated from 20 to 400 feet, and more, situated on the tertiary formation, often in the pine lands, remote from swamps, being high, dry, and clean, suffered more, in many instances, than New Orleans situated, as it is, upon the recent alluvium or newer Pliocene, touching the river in front and dipping into the stagnant swamps of the cypress basin in the rear, and intersected everywhere with filthy gutters, sewers, ditches or canals. The elevated zone of pine woods in Northern Louisiana, and elsewhere in the adjoining States, forms a striking contrast to the depressed plains, cypress basins, and marshes of the Southern delta. The epidemic of 1853, like previous ones, goes to prove that marsh-miasma is not the specific cause of yellow fever, as is generally supposed. The very towns which the lamented Drake recently designated, on theoretical grounds, as safe retreats from yellow fever, have suffered most from it.

This topographical sketch of yellow fever will be concluded by a slight outline of a few towns where it appeared in 1853—some in elevated, some in depressed situations, taken almost at random from a multitude, omitting those of Texas altogether.

1853. Pensacola. The epidemic appeared at Pensacola: 30° 29' N. lat.; elevated 40 to 50 feet—with rising grounds in the rear, the sea before, and dry white sands beneath it, (founded in 1699). This town has for nearly a century been occasionally visited by yellow fever and sometimes nearly depopulated.

Yazoo. The city of Yazoo, "dry, elevated and beautiful," 32° 40', N. lat., "was shrouded in gloom, sorrow and mourning by this never to be forgotten pestilence." By the first week in October, 150 had died of the disease, which was still progressing—a large mortality for its reduced population.

Baton Rouge. Baton Rouge, 30° 36', N. lat., 135 miles above New Orleans, on high ground, with a population of 2000 greatly reduced by flight, was, early in November, reported officially to have lost 202 by the epidemic.

Shreveport. In Shreveport, 600 or 700 miles from New Orleans, on the Red River, the epidemic beginning in September, declined early in November, but reappeared towards the end of that month, and still continuing to December, having destroyed about one-fourth of the population, judging from the newspapers and from the verbal statements of visitors from that town. Up to the 2d of September, 165 fatal cases had been reported.

Thibodaux. In Thibodaux in about one month ending on the 24th of September, the deaths from yellow fever amounted to 147, or 15 per cent. of the resident population, as reported in the papers; but Dr. McKinley, a practitioner in the town, informed me that not more than 500 persons remained during the epidemic, and of these 160 died—more than one-third.

Fort Adams. About two hundred miles above New Orleans, upon the steep declivities of the hills which border the eastern bank of the Mississippi river, stands the town of Fort Adams, which in former years, as well as in 1853, was visited with yellow fever, as were the neighboring plantations upon the hills.

Natchitoches, 31° 46' N. lat., one of the oldest towns of Louisiana, more than four hundred miles from New Orleans, on Red River, "beautifully situated on a well developed river bank, extending back to a pine bluff, with fine scenery around it," suffered and still suffers severely, at the latest dates. Natchitoches.

The village of Lake Providence, in a population of two hundred, is reported to have lost one hundred and twenty from yellow fever. Providence.

At Alexandria, the disease became epidemic about the middle of September. It declined towards the end of November, but was not wholly extinguished at the latest dates. The disease is reported to have carried off from one-fifth to one-sixth of the population. The heavy frosts at the close of October and beginning of November, did not appear to have had any marked influence upon the epidemic. Alexandria.

From this imperfect geographical enumeration, it is evident that *altitude* did not modify the epidemic of 1853. The general opinion that yellow fever appears only in depressed places, or marshy plains, is contradicted by innumerable facts in America and in Europe.

The report on quarantine and yellow fever by the British Government for 1852, enumerates ninety-six cities, towns and villages in Spain, wherein yellow fever has prevailed in this century. Many of these places are far inland, high, dry, rocky and hilly, and among mountains. Ximena on a hill; Chipiona on a rock; Medina Sidonia on a high hill; Los Barrios in the mountains; Xerez on a hill; Arcos de la Frontera on a very high rock; Utrera, between two hills; Carmana on a hill; Moron at the foot of a chain of mountains; Granada 927 feet high, near the Sierra Nevada mountains, thirty-one miles from the sea; Ronda in the midst of a range of mountains at a very great elevation.

The medical geography and yellow fever mortality of Gibraltar, as forming the strongest contrast to New Orleans, and as contradicting the marsh-theory of yellow fever, deserve a slight notice: Gibraltar, a compact, gray, marble promontory, three miles long, seven in circumference, an area of 400 acres, covered in few places with earth, rising 1,500 feet above the sea which washes its almost inaccessible walls, having had a population of 15,000 in 1804, lost out of this number in a few weeks 5,733 souls from yellow fever, or nearly two in five. Canal Carondelet.
1796.
1853.

Without the remotest wish to add another to the many futile expositions of the specific cause of yellow fever, I may be allowed to refer to two coincidents which attended the first and last epidemic irruptions of this disease in New Orleans. The original Basin of Canal Carondelet was excavated in 1796; the capacious Basin now being excavated for the same Canal, about a mile from the city and from the former, was to a great extent dug out just before the epidemic. Frequent visits to this spot with the view to its geological character, gave me opportunities of noticing whatsoever transpired in that district in the spring, before the epidemic appeared. The laborers, nearly all Irish, enjoyed very good health, although the emanations from the Bayou, where the scene of labor lay below the terminus of the old Canal, were most offensive. The water was so impure that many of the fish were killed, adding to the offensive effluvia. This, however, was attributed, not so much to the filth from the streets, as to the deleterious refuse matters from the gas-works of the city.

In the New Orleans Directory for 1852, I gave a summary of my researches, based on documentary, traditional and living testimony, showing that in both the Jail.

old calaboose and new prison, yellow fever had never prevailed, even during epidemics, although no means had been adopted, as quarantine, fumigations and seclusions, to prevent the introduction of the supposed contagion of yellow fever. The conclusion drawn upon that occasion is thus cautiously expressed: "There is, if we may reason from what is known, but one certain method of escaping yellow fever in New Orleans—*incarceration!* That may always fail hereafter, but so far it has not." Failed it has, during the far-reaching epidemic of 1853, but the failure has been so limited that the general rule is not yet invalidated. Through the politeness of my friend, Dr. Cartwright, I have received a document copied from the jail record, from which it appears that the average number of prisoners in the Parish Prison from June 2d to October 4th was 170, a large portion unacclimated; among whom twenty-two were attacked with yellow fever and six died, two having had black vomit. Twelve of these prisoners were admitted after the 11th of May, anterior to which several cases of yellow fever had appeared in the city, as it has been asserted. Four of these prisoners were admitted in May, one in June, three in July, two in August, two in September, and all but three had been admitted during the year 1853. Now if twenty be deducted for the acclimated, the residue 150, if they had been at large, exposed to the sun, dissipation, &c., would probably have lost fifty of their number, belonging, as they did, to the reckless class.

1852-3. From the same gentleman I learn that the records of the jail show there was but one death more in 1853 in the jail than in 1852, among the same average number of prisoners, and for the corresponding period of the year.

Frost. About the 25th of October a white frost appeared, for a few nights, at many of the interior towns of Louisiana, which was received as the harbinger of returning health, but which did not, in a marked degree, arrest the march of the epidemic. Warm weather, however, soon returned, and has continued to the present (the third week of December;) but this did not revive the epidemic in places where it had declined, as in New Orleans and many other places.

Clinton. In the town of Clinton, in the parish of West Feliciana, lying between the Mississippi and Pearl rivers, 100 miles Northwest from New Orleans, the epidemic began about one month before this frost, but at the latest dates (December 10th) it had not yet disappeared—75 having died out of 350 or 400 who did not fly from the town as did about 1,000 persons. Several blacks died.

In places where the epidemic had steadily and greatly declined, the return of absentees, and the influx of strangers did not reproduce the epidemic, as was generally expected. The arrival of absentees, mariners, steamboatmen and immigrants, amounting to about 50,000 in New Orleans, did not, in any appreciable degree, affect the ratio of declination. The mortality, from yellow fever, officially announced for the week ending December 18th, 1853, being three, discloses a fact of supreme significance against the contagiousness of this disease, inasmuch as the city is, if any city can be, reeking with contagion.

CHAPTER VI.

MORTUARY TABLEAU OF NEW ORLEANS AND MOBILE DURING THE EPIDEMIC OF 1853.

The population of New Orleans when the epidemic broke out is estimated at 150,000, or 4,541 more than that of the city census of the year 1852, which gave a total of 145,483. It is probable that 30,000 left the city, whereby the population remaining was reduced to 120,000, including 30,000 or 40,000 that had never passed through an epidemic, and perhaps many thousands that had passed untouched through the epidemic of 1847—some of whom suffered in 1853—an enumeration, however, merely proximate, without any certain basis.

1853.
Population.

As the epidemic increased the mortality from other causes was little affected, particularly after the month of July. For five months ending June 25th, the average weekly mortality from yellow fever was about 4—from other diseases 116; the next five weeks gave an average for yellow fever of 280 per week—other diseases 160. The next four weeks ending August 28th, gave a yellow fever average mortality of 1,211 per week, or by weeks respectively, 967, 1,288, 1,346, 1,243—aggregate 4,844; while for the same time the average from other causes was 157—not including an average weekly mortality of 71, reported as deaths from causes unknown, and generally supposed to have been deaths from yellow fever. During the next four weeks ending September 28th, the average weekly deaths from yellow fever was nearly 200, while for the same time the average from other known causes gave 65, and deaths from unknown causes a fraction over 16.

Numerical
analysis.

From the last week in May, when the weekly mortality was for yellow fever 1, and for all other diseases 139, the non-yellow fever mortality vibrated but little until after the week ending the 23d of July, having ranged from its maximum 158, for the week ending 25th of July to its minimum 129, for the week ending July 9th, but for the week ending July 23d it rose to 188; the next week it reached its maximum for the season, that is 192, at which time the epidemic was rapidly increasing, 1,409 having died, 1,121 in the two preceding, and 1,325 in the three preceding weeks. About the 9th of July the epidemic, as such, began, so that the ratio of mortality from causes other than yellow fever, was not much disturbed during the greatest fury of the epidemic until the week ending September 4th, after which it declined to 102; but for the next week it rose to 120, nine less than on the 9th of July, when the epidemic appeared, and 19 less than the week ending May 28th, when the first death from yellow fever was reported. In the week ending the 21st of August, which gave the maximum of deaths from yellow fever, that is 1,346, the mortality from other diseases was but 152, exactly the same as for the week ending July 2d, when, as yet, all the deaths from yellow fever beginning with May, were but 47. So that the ratio of mortality, independent of the yellow fever element during its unparalleled prolongation, was but little changed except during the last two precursory weeks of July. Thus the epidemic caused but a slight oscillation among other maladies, while its pestilential waves rolled over the devoted city.

If the epidemic be considered in a larger view, by months, it will be seen that its collateral influence is scarcely manifest. Mortality from causes other than yellow fever, for June, 581; for July, 559; from yellow fever for June, 40; for July, 1,406, not including 45 for the former month, and 112 for the latter, under the head of unknown or "not stated."

THE EPIDEMICS OF

In August, the two days in which the mortality from the epidemic was least, were the 1st, 106, and the 31st, 95; the decline in September was gradual from the 2d, 102, to the 30th, 9. The progressive decline, with some fluctuations, continued throughout October and November.

The greatest number of deaths in any one day, 283, of which 239 were from yellow fever, occurred on the 22d of August. The greatest number of deaths from the fever, in any one month, was in August, amounting to 5,189, or by adding the unknown, 5,242; by adding all the deaths 6,235; an average exceeding 201 per day; about 9 every hour; one every six or seven minutes! for a whole month!!

1853.
Mobile.

Mobile: Here the epidemic began early in August, reached its maximum mortality in the first week or ten days of September; the deaths from yellow fever for the week ending the 9th day of that month reached 194, which, added to the mortality from other causes gave 241, a fraction less than 35, as the average of each day; during the second week the mortality began to decline slightly; in the last week the deaths from yellow fever had decreased more than two-thirds; the decline was progressive throughout October; on the 26th of this month the aggregate mortality from the first of August amounted to 1,256, of which 889 were from yellow fever according to the official report; but of the number reported as dying from causes unknown, it was supposed that half were from yellow fever, which will give a yellow fever aggregate of 1,072 without counting sporadic fatal cases which occurred subsequently. The average number of deaths for each of these eighty-seven epidemic days, is a fraction less than 15. With the increase of mortality from yellow fever, an increase of mortality from other causes took place also during this period.

The epidemic in Mobile beginning more than a month later than in New Orleans, reached its culminating point three weeks later. Of shorter duration in Mobile, its proportional mortality was larger than in New Orleans, a fact that applies to nearly all the towns which the epidemic visited.

ARITHMETICAL TABLEAU OF THE MORTALITY IN NEW ORLEANS, IN 1853, FROM
MAY 26th TO OCTOBER 22d.

Period 1—May 26-31—Sporadic.		Period 4—Aug.—Epidemic Culmination.	
Total.....	110	Total.....	6,235
Yellow Fever.....	3	Yellow Fever.....	5,189
Other Diseases.....	97	Other Diseases.....	689
Diseases not stated.....	10	Not stated.....	357
		Discrepancy.....	29
Period 2—June—Epidemic Inception.		Period 5—September—Epidemic De- crement.	
Total.....	666	Total.....	1,565
Yellow Fever.....	40	Yellow Fever.....	485
Other Diseases.....	581	Other Diseases.....	961
Not stated.....	45	Not stated.....	88
Period 3—July—Epidemic Increment.		October 22.	
Total.....	2,077	Total.....	503
Yellow Fever.....	1,406	Yellow Fever.....	139
Other Diseases.....	559	Other Diseases.....	310
Not stated.....	112	Not stated.....	57
		Discrepancy.....	3

RESULT.

Total Mortality for 149 days*.....	11,156
Total Miscellaneous Diseases.....	2,697
Total Yellow Fever.....	7,782
Total unnamed (mostly yellow fever).....	669

*Mr. Maginnis' "List of Intermittents" begins twenty-six days earlier, and ends eight days later than the enumerations which I have compiled. His aggregate exceeds the above by nearly one

By adding the two latter, the aggregate mortality from yellow fever will be 8,451, or by deducting one-third from the unnamed diseases, 8,228, without enumerating deaths from yellow fever, from October 22d to December 22d.

In these totals the discrepancies are reduced from 32 to 8. The whole mortality from yellow fever is estimated, in round numbers, at 8,400 for the year 1853.

The maximum mortality of the yellow fever of 1853 arrived sooner in the season than usual, and is more truly represented by that of the plague in London, in 1665; namely—June 590 deaths, July 4,129, August 20,046, September 26,230, October 14,373, November 3,449; total 68,817.

According to the report of the Howard Association, published late in December, the society had under its care during the epidemic of 1853, no less than 11,088 yellow fever patients—5,203 males, 5,885 females—of whom 2,942 died, and 8,146 were cured. Expenditure, \$159,190 32. Average for each patient about fourteen and a third dollars. Of this number (5,845) much more than half were Irish; German, (2,890) nearly a quarter; French, 436; United States (716) less than one in sixteen of the whole. Hence, it appears that Ireland and Germany give 8,735; other countries 2,353.

Howard Association.

The Association, during the epidemic, received from all parts of the Republic the sum of \$228,927 46; more, indeed, than they had need of, leaving a large surplus to be put out at interest for this charity.

Omitting Spain and the United States, the yellow fever zone contributed but nineteen; the plague zone of the east, as Palestine, and Greece, but seven to this formidable aggregate of 11,088.

The predominance of female patients in the above enumeration is remarkable, in as much as that sex is the least susceptible to the yellow fever, and contribute to the mortality from this disease in a ratio greatly inferior to males. The most probable explanation is this—females preferred the Howard hospitals to the Charity hospital and the city hospitals, established by the Board of Health.

Mortality of the sexes.

In order to ascertain approximatively the proportion between the mortality of the sexes, I selected the first day of August, counting all the interments from fever, as distributed among the letters of the alphabet, and among the following cemeteries, in Mr. Maginnis' "List of Interments:"

	Males.	Females		Males.	Females.
Cypress Grove No 2.....	8	2	Lafayette.....	24	11
Protestant.....	1	1	St. Patrick's.....	15	10
Charity Hospital.....	21	9	St. Vincent.....	13	8
Total.....	82	41			

Hence, it appears that the mortality of females, is, for 1853, exactly half as great as that of males. This high ratio of female mortality is, however, one of the most extraordinary features of the late epidemic. Of 1,450, who died of yellow fever in August, September and October, 1841, but 220 were females, or nearly one in seven. The ratio of mortality among children will probably be found enormously high from fever in 1853, compared with preceeding years. This will appear obvious by Mr. Maginnis' list, compared with the following extensive analysis of the epidemic of 1841; thus—I made thirty-three series, each consisting of thirty persons; I then took the youngest one in each series, (among these 990 dead) which

Children of 1853-1841.

thousand, (995) and is doubtlessly as accurate as the crude materials would allow. This document will afford grave-yard arithmeticians facts worthy of extended analysis as to ages, sexes, and so-forth.

gave these ages: 15—17—17—2—5—20—19—16—20—17—15—17—18—19—8—2—7—18—18—19—8—6—8—2—15—3—18—14—2—18—3—5—19. Scarcely an infant in the whole series!

1853.

In order to test, approximately, the ratio of infantile deaths from fever, I counted the ages of all fever victims who were interred in the following cemeteries, on the 10th of August, namely, Cypress Grove, No. 1 and No. 2, and St. Patrick's, amounting to eighty-nine known ages, and two called "infants," (say ninety-one) among which were two aged 2; one aged 3; one 4; which with the two infants, make six out of ninety one—a result which could not have been anticipated from the history of anterior epidemics, as the very young and very old, as well as women and negroes, had always suffered less than other classes.

CHAPTER VII.

NUMERICAL TABLEAU OF CREOLE MORTALITY IN 1853 FROM YELLOW FEVER.

Mr. Maginnis
on Interments
in N. Orleans.

Immunity.

Method.

Numerical
analysis.

The proprietor of the True Delta, Mr. Maginnis, having made the necessary arrangements early in the epidemic of 1853, to obtain a correct list of all the deaths (12,151) in New Orleans for the six months ending with the first of November, and having published the same early in December, showing the name, age, place of nativity, disease and date of interment, compiled at length from the physicians' certificates and other documents, I beg leave to offer some numerical reasonings based on this valuable document, particularly with the view of illustrating the disputed question, whether Creoles enjoy immunity from yellow fever or not? Whether Creoles die, and in what proportion? The method I have adopted is as fair as can be conceived, and will give in this particular, a compendious view. I selected the two first weeks of August, the middle of the epidemic, as distributed among the twelve cemeteries, and among the different letters of the alphabet, counting all the persons who died of fevers of what kind soever, as the list does not distinguish the fevers—the one from the other—an arrangement the most unfortunate for the merits of the Creole question, because, in any case it will be admitted that Creoles would be more likely to die of any other fever than yellow fever. It will be provisionally assumed that all the deaths marked "*fever*" were from yellow fever alone. The whole number of deaths during this period among natives of New Orleans is but 21—of this number one was aged five, and two aged seven days; two aged two; one aged three, and one ten months; one aged one—three aged two—one aged four—one aged five, and two aged nine years. In one case the word "child," in another "infant," are used to denote the age, and in two cases the ages are omitted. Omitting the two infants and the two of unknown ages, probably infants, the average of the remaining seventeen is twenty-six months, or by omitting the two highest ages, the average age will be less than fifteen months. The list here referred to shows that these twenty-one children are all that died of fevers of every kind among all classes of population during fourteen days in the midst of the epidemic. For the sake of illustrating the argument, the least favorable to creolization, as before intimated, let it be assumed that these all died of yellow fever, though there can be little doubt that the whole number were born of unacclimated parents—parents who had not been creolized either by birth or long continuous residence in the city. Even the two aged nine years each, probably were born of

parents only temporarily resident in the city during the cooler season of the year, whose summer residences are in the country; or they may have been born of parents who lived here nine years ago, as immigrants or visitors, and who had returned to New Orleans. But let it be admitted that both of these children were born of parents constantly resident for ten years—admit that these children had not been sent from the city to the country, or to the North among relatives, to school, &c.; then let these two Creoles be compared with the whole number of deaths from yellow fever, and what will be the result, supposing that they did die of yellow fever and not from some other fever? The whole number of deaths during these two weeks, as taken from the official daily report of the Board of Health, is 2,702—from yellow fever alone 2,252—from diseases not named, supposed to be yellow fever 114; total deaths from yellow fever 2,369. According to this supposition waiving, for the present, the consideration of former epidemics, one Creole in 1,184 died of yellow fever out of a creolized city population four or five times greater than the non-creolized or strangers.

In order to vary the numerical consideration, I selected the first week in September, counting the number of deaths among persons who had been born in New Orleans. This was the more desirable, because at that advanced stage of the epidemic it might be supposed that it would reach persons long resident to a greater extent than in its inception, and, such indeed was the general opinion. Upon examining the alphabetical list as distributed among the twelve cemeteries, nine individuals proved to have been born in New Orleans: one aged two, one three, one seven, one eight years, two aged six months, one eight months, one eighteen months, and one mentioned as an "infant," giving an average age of thirty-four and a half months. This whole number is subject to all the contingencies in the first series; during these seven days the total mortality was 741, of which 560 were from yellow fever, and 33 under the head of "unknown," making 593, leaving 148 for all other diseases. This enumeration does not conflict with, but gives validity to, the explanation given of the former series.

The St. Louis cemetery No. 1, which represents the wealthy French of the city and of the country, and those immigrating from France, presents the following mortuary tableau for six months, ending with November the first: deaths from all fevers among individuals born in New Orleans, 6; one aged twenty months, four, respectively, 3, 10, 20, and 22 years, and one styled "infant." The explanations previously given apply here. That only six should die of fever in six months, had no epidemic prevailed, is remarkable, in a mortality of two hundred and six. Had all these six deaths been from yellow fever, it does not, in all probability, invalidate creolism in the least. Three were infants, one a girl, and two still young, who probably had not remained continuously in the city, and who, on returning, contracted the disease.

The Protestant Cemetery is the best mortuary representative of the wealthy creolized Americans, many of whom, however, could scarcely expect immunity during an epidemic, inasmuch as they leave the city annually, in the summer, and educate their children in the North. The interments from all fevers among the natives of New Orleans in this cemetery, for six months ending November first amount to eight, in a total mortality of four hundred and thirty; one of these is "a child," one aged twenty-two months, three aged two years, one five, one fourteen, and one eighteen years. The latter two were, probably, as usual, truants, who did not stay at home much, if at all, but, having returned, died. Previous ex-

St. Louis
cemetery
No. 1.

Protestant
cemetery.

planations will apply here; but, if they be rejected, the mortality from all fevers is, for this cemetery, a little over one for each month.

Cypress Grove
No. 1.

The Cypress Grove Cemetery No. 1, is assimilated in character to that of the Protestant. In the former, the total number of deaths among natives of New Orleans from all fevers in six months, ending November the first, is four—one called “a child,” one aged two, and one seven months, and one three years, out of 300 deaths; that is, one native infant died in every two months upon an average.

The worst view of these facts does not overthrow the doctrine of immunity nor afford much aid to terrorists. The creolized dig but few graves in the swamp cemeteries, and if they were much damaged by yellow fever, these cemeteries would tell it.

Unknown
names and na-
tivities.

The records of the cemeteries of 1853 disclose the most astonishing facts, significant at once of the rapid and deadly march of the epidemic and of the enormous recent increment of the uncreolized element of the population. How many nameless dead bodies! The place of nativity in nearly two-sevenths of the dead is not known, according to Mr. Maginnis' list! amounting to 3,232! In 1843, among 692 deaths from yellow fever, the nativity of only 132 was unknown, a little over one in six. In 1847, among 2,600 deaths from yellow fever, the place of nativity was unknown in only 238 instances, or one in eleven nearly. Further illustrations are unnecessary. It is evident that both the Creoles and the creolized do not come within the category, “unknown.” The name and the place of nativity among these classes could scarcely have been unknown, had yellow fever been fatal among them in 1853, a fact so extraordinary would have excited not only attention, but consternation

CHAPTER VIII.

CREOLISM, URBAN, RURAL AND ACQUIRED.

Creole.

The word *Creole* in Northern latitudes is often misapprehended, so as to imply more or less of negro blood.

In Spanish America, Criollos or Creoles, were, in the early days of the colonial governments, the native whites of European extraction; neither the native, Indians, nor native negroes, nor mixtures of the races, were so denominated.

Towards the close of the last, and beginning of the present centuries, Drs. Mosely and Williamson and many others, used the word *Creole*, as applicable, not only to the whites born in the colonies, but to negro natives also.

“CREOLE—A native of Spanish America or of the West Indies, descended from European ancestors.” (Webster's Dict.)

“CREOLE—A name given to the descendants of whites born in Mexico, South America and the West Indies; in whom the European blood has been unmixed with that of other races.” (Brande's Encyl.)

“CREOLE.—Nom qu'on donne à un Européen d'origine qui est né dans les colonies.” (Dict. L'Acad.)

In Louisiana, every native, be his parentage what it may, is a *Creole*. They are convertible terms.

Although the word *Creole* in its usual acceptation means a white person, it applies to all races, as *Creole* negroes; it even applies to the inferior animals, and things; a *Creole* chicken, egg or cow, is worth nearly twice as much as one from a

distant State; while a creolized horse, after considerable risk, becomes better, being larger than a Creole horse. City creolization, whether native or acquired is, a practical distinction in the business of New Orleans.

The word Creole is generally used in a sense too latitudinarian for precise statistical investigation. It is the resident city Creole, not the country creole—^{Creoles of the city and the country.} not the Creole who migrates every summer to New York, London, or Paris, that may hope for as good health as is possible to humanity, while two or three hundred others daily fall victims around him—a definition which excludes a great many called Creoles, and one often forgotten, in writing on the subject of yellow fever. Hence arises many apparent contradictions among authors who use the word in different senses.

In former, still more than in recent times, has this fundamental distinction been overlooked. In a great majority of the works on yellow fever in the West Indies, and even in Louisiana, where Creoles are said to suffer from this disease, the true explanation is, that these persons are *Creoles of the country, not of the city*; or at most, they reside in the latter occasionally, chiefly in the winter, and are, therefore, liable to the disease, though they usually have it in a milder form than strangers, and very rarely die.

In an interesting manuscript on yellow fever by the late Dr. Dufour,* of New Orleans, left in the possession of Mr. Joseph Le Carpentier, copied from the original, in the doctor's hand writing, by Mr. Y. Noel, and kindly presented to me by my friend Mr. Barbot, apothecary, it is asserted by the doctor, that in the epidemic of 1820, as well as in years preceding, many persons, natives of the place, had fallen victims to this malady. He says vaguely enough, "*beaucoup de personnes des pays en furent atteintes, particulièrement les jeunes gens*:" he treated several of these, two of whom died the same day in the same house, a brother and sister.

A few physicians and others, mostly advocates for the contagiousness of yellow fever, maintain that all the Creoles of New Orleans, not less than strangers, have this disease once during life, for the most part during childhood, and that it proves fatal to many of them. It must be confessed that as yellow fever, with rare exceptions, attacks an individual but once, it approximates in this particular, the law of contagions proper. This sweeping statement, however, is, with few exceptions, erroneous, as may be proved by authentic documents concerning all of the epidemics witnessed by the writer for seventeen years, not excepting the extraordinary one of 1853 itself.

It will have been remarked by careful observers that many families have been settled in New Orleans for half a life-time without ever having had yellow fever. Indeed, it has been thought by many physicians previous to 1853, that at least one-third of all strangers settling permanently in New Orleans, escaped yellow fever altogether—a ratio, however, which is too high for the year 1853, (it may be safely affirmed) although many strangers, including entire families, escaped the extraordinary epidemic of 1853.

The simple fact of being born in New Orleans is not, in itself, protective. Thousands are thus born of uncreolized parents, who pass through the city, as immigrants, or who reside in the city in the winter only. Their return to the city might, in this way, swell the number of the so called Creoles to hundreds every epidemic.

If it be conceded that no creolized person of New Orleans ever dies of yellow fever, it will still be difficult to account for the extreme rarity of deaths from yellow fever among individuals who ought to have been born in the city, upon the doctrine of chance or probability. Hence a greater number of victims, among natives, might be anticipated for these reasons.

Immunity. The exemption of the creolized of the city is a fact which every epidemic has confirmed: for example—take that of 1841, in which 1,800 died; five of whom only were natives of the city; one aged three weeks; three two years, doubtlessly born of non-creolized parents; except one, a doubtful case, in Lafayette.

1843. In 1843, among six hundred and ninety-two deaths from yellow fever but two are certified as having been born in New Orleans, and these two were proclaimed, in a public journal, to be two errors, by the compiler of the dead list for that year.

Creolization. City creolization, native or acquired, has hitherto carried with it protection against epidemic fevers of almost every kind, as typhus, congestive, or cold plague, bilious remittent, and even intermittent; the latter, however, is more or less prevalent in the rear of the city, where the cypress swamp and the population meet face to face, contending for possession. Be the cause what it may, hitherto almost complete immunity, a few sporadic cases of these fevers excepted, has been common to all not new-comers. As this immunity is uniformly indicated by the earlier writers upon Louisiana, before the invasion of yellow fever, the exclusion of the latter, if a possibility, would not in all probability be replaced by the former; indeed, immigrants before 1796, were only subject in a few cases to a slight fever, never mortal, as I have more than once proved by French writers of undoubted credibility. These authorities have not failed to mention infantile lock-jaw, and a few other diseases of the city and country, which, as they affirm, formed the only exceptions to the extraordinary salubrity of the climate in former times.

Ante-epidemic era.

Creolism. City creolism is here used as a more precise and restricted term than acclimation, and denotes that immunity from yellow fever, whether transmitted from parents born and resident in the city, or that immunity acquired by long residence, with or without having suffered an attack of the disease; in any case it is for most part hereditary—the exception consisting of a susceptibility to a slight fever as proved in 1853.

City creolization is not peculiar to New Orleans, Mobile, Charleston, Havana, or Vera Cruz; but there are many new Southern towns, or rather new aggregations of new-comers, where its influence is less obvious, certain, and uniform, or places where it may fail altogether.

Exemption. Congenital city creolism, that is, the constitutional modification incidental to the being born of Creole or thoroughly creolized parents, with continuity of city residence, exempts the individual from yellow fever with nearly the same uniformity that vaccination prevents the small pox or the varioloid. The varioloid is, as all know, modified small pox, happening to one who has undergone vaccination, or the small pox previously, the frequency of which is probably as great as the frequency of yellow fever among city Creoles who have never absented themselves for one or more winters in Northern climates.

Rural nativity. Country Creoles: All born beyond the limits of the city are susceptible to yellow fever on coming into the city or into a village when yellow fever prevails. In 1853, yellow fever has, for the first time, perhaps, prevailed to some extent in the rural districts, remote from towns, among isolated persons who had not visited

them. But in almost all of these instances the disease prevailed in aggregations of people which are virtually towns, as the plantations where the population is concentrated at one centre, often forming a village of from 100 to 500 or more persons. But in the present state of our knowledge of the prevalence of yellow fever in the rural districts in isolated families, scarcely anything can be pronounced positively as to the extent or frequency of attacks among such as had no connection with towns as visitors. Whether, on the other hand, city Creoles who have removed to the country, who have never resided one or more winters in Northern latitudes, have in any instance suffered an attack in the country, or on returning to New Orleans, is unknown. Second attacks are rare.

Plantation
villages.

Rural epi-
demic.

Creolization in the city, with or without having had yellow fever, is equal as a protection against yellow fever, to congenital or native creolism. This immunity is usually acquired in less than ten years, often in five, but to this rule very many exceptions occurred in the extraordinary or exceptional epidemic of 1853.

City immunity, native or acquired in similar cities, as New Orleans, Charleston, Mobile, Pensacola, Havana, Vera Cruz and other places in the present limited yellow fever zone, is probably identical and mutually protective in all such places, while nativity in cities once in the yellow fever zone in which yellow fever has not been prevalent for many years, as in Baltimore, Philadelphia, New York, Boston, Cadiz, Seville and other places, affords no protection.

Mutual urban
immunity.

City creolism both native and acquired is, to a great degree, as before remarked, hereditary or transmissible from parents to children. At least the exceptions to this law are few, and fatal results almost unknown, as may be proved by the bills of mortality, though this is like many other indubitable truths boldly denied, particularly since the decline of the epidemic of 1853—the most mortal, erratic, and extraordinary ever seen in New Orleans. It will have been seen what warrant the terrorists have for denying creolization.

Hereditary
immunity.

Setting aside the epidemic (of 1853) and reasoning from what is fully proved by the past—the best expositor of the present—it will be seen what little foundation there is for the utter rejection of creolism and acclimatization, which in former years was rung and is still ringing in the public ear.

That many Creole children had, during the epidemic of 1853, a fever—a slight fever—yellow fever if you please, known as such rather by the co-existence of the epidemic than from any severe symptoms among these children—a slight fever, never yet described, having generally of but one paroxysm, lasting from six hours to one, two, or three days, scarcely ever requiring medication. That a few of these cases acquired an alarming violence and even proved fatal, is most true—most deplorable. It will, no doubt, be found upon a full examination of these fatal cases, that nearly all belong to the following classes and conditions: although born in the city, their actual residence has not been continuous, but has vibrated like a pendulum between the country and the town, between Northern schools and cities and New Orleans; or they have been born of unacclimated parents whose continuous residence has been less than ten years, often not that many months; or they have been born of parents one of whom is not acclimated; or, finally, they have been born while the parents resided temporarily in New Orleans, (constituting a large class) and, hence, called Creoles, who, subsequently having come to the city, fell victims, and, hence, appear in the mortuary certificates as natives of the city.

Creole child-
hood.

Unknown
names and
nativities.

No one acquainted with New Orleans, as it is, can for a moment believe that the large class of nameless persons included in the mortuary returns, called the unknown, as having died of yellow fever, could have been Creoles or residents for any considerable period. A Creole whose name had never been known would be a phenomenon.

The very gentlemen who contend that the Creoles are no more (one doctor told me that they were less) exempt from yellow fever than strangers, contradict themselves by their own written certificates. Figures contradict them. Every list of deaths, including that of 1853, contradicts them. The demon of contradiction can go no further.

CHAPTER IX.

YELLOW FEVER ETHNOGRAPHY—RACES, AFRICAN AND INDIAN.

Negro race.

The immunity of the African race from death by yellow fever is a problem unsolved, but of the highest import in physiology and ætiology. Whether this immunity be owing to color, or to an unknown, transmissible and indestructible modification of the constitution originally derived from the climate of Africa, or from anatomical conformation or physiological law, peculiar to the race, is not easy to determine. It does not appear that yellow fever prevails under an African sun; although the epidemic of New Orleans in 1853 came well nigh getting the name "African yellow fever," "African plague"—it was for weeks so called!

Immunity.⁷³

Although non-creolized negroes are not exempt from yellow fever, yet they suffer little from it, and very rarely die. On the other hand they are the most liable to suffer from cholera. As an example of the susceptibility of this race, take the year 1841: among 1,800 deaths from yellow fever, there were but three deaths among the blacks, two having been children, or 1 in 600, or 1 in 14,000 of the whole black population.

1841.

1838.

The same immunity from death in this disease is enjoyed throughout the yellow fever zone by the black race: for example, in the epidemic in Charleston in 1838, the official report shows that among 538 interments of yellow fever subjects, only seven were blacks, or about 1 in 50, and these were, probably, as usual, not city Creoles. This is, however, an extraordinary mortality compared with the same class in New Orleans.

1853.

Numerical
analysis.

In order to ascertain the proportional number of deaths from fevers among blacks in 1853, I adopted the following plan, comprehending the six months ending November 1st: I analyzed more than the one-fifth of the list of deaths by Mr. Maginnis, beginning with the letter A and ending at D, running through all the twelve cemeteries for the six months. The result is fourteen deaths among blacks from fevers of all kinds; two of whom, a child aged eight days, and one aged ten months, were born in New Orleans; of the residue four are mentioned under the term "child," one aged nine months, and one two years; one nine years; the birth place of the residue, one excepted, unknown. The two born in New Orleans that died aged eight days in the one case, and ten months in the other, were doubtlessly not the children of creolized parents, many of whom are brought from more Northern States and kept here for sale, not only to the citizens of the city, but to planters in

the country. Among thousands of these, it would be not surprising that fourteen should die of all kinds of fever in six months, if no epidemic had existed, and if the entire race had been insusceptible to yellow fever. In round numbers the total mortality had been 2,500—that from yellow fever about 2,000—during the period above indicated, in which fourteen blacks, many of whom were infants, died of fevers of all varieties, in a black population of 30,000.* Had these deaths all been from yellow fever, they would not, so far as this worst of epidemics goes, affect the argument that while the black race is susceptible to yellow fever, if born out of the city, death is, from this disease among them, a very rare occurrence; a majority of city practitioners never, perhaps, saw a single fatal case.

The Necropolis of New Orleans represents all the fundamental types, if not every variety of the human races, Caucasian, American, Asian and African—all of which except the latter—become the ready victims of yellow fever, the creolized excepted. I have seen, in the same day, the copper-colored American from the low lands of the Mississippi and the Scandinavian from the icy mountains of Norway, dying of the epidemic. The Indian race is equally susceptible as the white race to yellow fever, although some writers have denied this.†

Dr. Cartwright, of New Orleans, formerly of Natchez, in his account of yellow fever in the latter city in 1823, published in the Medical Recorder, says “five of the aboriginal inhabitants, belonging to the Choctaw tribe, came into the city during the prevalence of the epidemic, and afterward encamped two miles from the city; four took the disease, three men and one squaw. They were most barbarously burnt, [by themselves as a cure.] The squaw was covered with large ulcers, produced by fire, from the pubis to the chin, and was writhing and groaning by the side of her grave, which the well Indian had dug to put her into, as he had prognosticated her death; but the men bore their pain in sullen silence and with savage fortitude—disdaining to disgrace themselves, as men and warriors, by imitating the groans of the squaw, but applied to their own skins the lighted spunk, nor seemed to feel its corroding fire.”

Soon after the discovery of America, indubitable records show that the Indians of St. Domingo and other islands were desolated by the yellow fever.‡ The late Noah Webster has shown that this disease prevailed among the Indians of New England, in 1618 and in 1746, and at other periods.

CHAPTER X.

METEOROLOGICAL TABLEAU OF THE SUMMER OF 1853.

It is not intended to give the special meteorology of New Orleans during the year 1853. It is impossible to connect the temperature of any locality with yellow fever, so that the appearance of a known degree of heat or rain, will invariably prelude or cause the appearance of that malady. Although the yellow fever zone

Races.

Indians.

Choctaw.

1853.

* The total colored population by the city census of 1852 was 29,174.

† T. Y. Simonds, M. D., in the Charleston Medical Journal, (November, 1851,) says “I have never yet heard of an instance of real yellow fever prevailing among the copper-colored race, or American Indians.”

‡ Breton, in his dictionary of the Carib language (1655) explains the Indian word for yellow fever, literally *coup de barre*, one of the names adopted by Du Testre and others, expressive of the muscular pains of yellow fever, as if produced by blows from a stick. [De Jonnés Monog. 41.]

Austro-boreal
axis of yellow
fever.

whose austro-boreal axis from Rio de Janeiro, in South America, to Rochefort, in France, is nearly seventy degrees, not to mention its still greater extension in 1803 to the Siberian peninsula of Kamtchatka, lat $56^{\circ} 30' N.$, about ten degrees further North, thus covering eighty parallels of latitude, including about three-fourths of all the land, and a still greater proportion of the inhabitants of the globe, still the disease has not appeared within these vast expansions, except in a comparatively few places. Towns the most dissimilar in topography and even in temperature, suffer or escape attacks in an inexplicable manner. But of all appreciable conditions, temperature is generally regarded as the most important; nay, it is regarded by many as the true cause.

Heat.

Blodget.

The most remarkable feature in the weather of the summer of 1853, is that of the diminished heats in the whole tier of Southern States bordering on the Gulf of Mexico in which yellow fever prevailed, compared with the Western, Middle and Northeastern portions of the Republic. L. Blodget, Esq., in charge of the Meteorological Department of the Smithsonian Institution, in an able paper "on the climatic conditions of the summer of 1853, most directly affecting its sanitary character," an official report for June, July and August, from ninety meteorological stations from Canada to Florida and Texas,* shows that in the fourth week of June, the maximum heat from New York to Savannah gave an average of 95° . Now the corresponding week in New Orleans gave, according to Lillie's tables for the corresponding week, only 92° as the mean maxima, and throughout the whole epidemic the average never for any week equalled that of the above mentioned central zone where no yellow fever appeared. The average maximum temperature of the week ending August 26th, in New Orleans, was 91° while the mortality was the greatest, amounting to 1,667, or more than 238 as the average per day, the temperature averaging one degree more than that of the week ending September the 15th, during which the mortality was only 411, averaging less than 59 per day. The average maximum temperature of the week ending October 22d was 82° , two degrees more than that of the preceding week, though the number of deaths did not differ more than three for that period.

Mr. Blodget says: "A most extraordinary heat occurred on the 29th and 30th of June, beginning earliest at the West by a day and a half for the distance from St. Louis to Washington. This extreme was central in the latitude of Washington, and was limited at Savannah on the South, and Burlington, Vermont, on the North, attaining 96° to 98° in Tennessee, Kentucky and Southern Ohio, and 99.5° to 102° at Washington and in Eastern Virginia and North Carolina. This is without any known parallel in the records of temperature here, and is several degrees above any recorded temperatures at New Orleans, Mobile, or Savannah. The mean of June was much above the normal one, attaining a maximum of excess in Wisconsin and Illinois of nine degrees. In August, a period of general excessive heat occurred, beginning, as usual, earlier at the West. The maximum in Illinois and the adjacent States was 90° to 94° , from the 8th to the 13th: in Ohio and Kentucky nearly the same; and passing Eastward, the district of greatest excess was central New York. The temperature was below 80° at Cedar Keys, Talahassee, and Pensacola, Florida through these days, and at no place South reached 90° . The mortality from the effect of great heat with great saturation was frightful—some term more compre-

*N. Y. Jour. Med. Nov. 1853.

hensive than *sun-stroke* seems required to designate the fatal congestion, or whatever may be the immediate cause of death, in these cases. * * * Mean temperatures and amount of rain are given in a tabular form from over ninety stations. The normal curve [or mean] at New York and Northward is a rise of 4° to 4.5° from the mean for June to that of July, and a fall of 3° to that of August. At Philadelphia and Southward it is somewhat less, decreasing to the Gulf coast, where the curvature disappears."

It was not until June that the yellow fever showed itself even in the sporadic form to any considerable degree—the week ending on the 30th of the month gave as the average of maxima 92° in New Orleans. Now, Mr. Blodget's tables will show that on and about the day aforesaid that the maxima temperatures were as follows at the places indicated where yellow fever did not show itself: Alexandria, Virginia, 95° ; Knoxville, Tennessee, 94.4° ; Oberlin, Ohio, 95° , 17th, 97° ; Baltimore, 92.3° , 22d, 96.2° ; Camden, South Carolina, 97.6° ; Sparta, Georgia, 97° ; Eutaw, Alabama, 101° , (the day before 104° ;) Lebanon, Tennessee, 95.90 ; New Harmony, Indiana, 28th, 97.5° ; Bloomfield, New York, 21st, 99.5 ; Philadelphia, 95° , 20th, 96° ; Sparta, Georgia, 97° ; Brooklyn, Michigan, 21st, 97° ; Poultney, Iowa, 20th, 97° . On the other hand many Southern towns were comparatively cool—those which escaped as well as those which suffered from yellow fever. Jacksonville, Florida, on the last day of June, 84° ; Pensacola, 85° . Again, compare the 15th of August—Smithsonian Institution, 91° , (the 14th, 94° ;) Alexandria, Virginia, 92.3° ; Savannah, Georgia, 77° ; Jacksonville, Florida, 87° ; Culloden, Georgia, 82.40 ; Austin, Texas, 82° . This period including the preceding two weeks and the week succeeding was the hottest part of the season in New Orleans, the maximum ranging from 93° to 94° , being much greater than that which attended the invasion of the epidemic. The week ending the 28th of July, gave an average of 87° , although the mortality at that time from yellow fever fell but little short of 1,400 during the month.

If we compare the summer heat (June, July and August) of the yellow fever zone with Northern latitudes, where yellow fever did not appear, it will be found that even the mean temperatures of the entire hot season correspond very nearly in many instances: the mean of New Harmony, Indiana, for June, 79.3° , nearly the same as Pensacola, which is 80° ; Baltimore 77.7° ; Savannah 79° ; Lebanon, Ky., 79.5° ; Camden, S. C., 79.3° ; Danville, Ky., 79.3° ; Mount Vernon, Ohio, 78.9° , agreeing within an inconsiderable fraction with Cedar Keys, Talahassee, Pensacola and Jacksonville, (78.9°) in Florida, and Eutaw, Ala., Austin, Texas, and other places.

The quantity of rain which fell in New Orleans in July, August and September, amounted to 16.81 inches, nearly two-thirds of which fell in July, which is usually the most rainy month in New Orleans—nearly one-third fell in the next month, leaving but the fraction of an inch for the latter, which, with the month of October, is the driest season of the year.

Rain.

On comparing July and August, the two great epidemic months in New Orleans in 1853, it will be seen that there was nothing peculiar—nothing that can account for the epidemic in regard to the quantity of rain, which was in some places greater or less than in regions free from the fever, and sometimes similar. In these two months there fell 16.81 inches of rain at New Orleans; at West Point, N. Y., 18.28; at Richmond, Mass., 14.235; at Montreal 10.191; at Philadelphia 9.37; at

Richmond, Va., 8.63; at Anne Harbor, Mich., 5.06; at Bedford, Pa., 3.877; at Savannah, 14.632; at Jacksonville, Fla., 10.1; at Pensacola, 4.078; at Cedar Keys, Fla., 15.1; Eutaw, Ala., 14.739, &c.

It is the more necessary to dwell upon these facts, because writers often most pertinaciously argue that yellow fever is owing to rain, when a rainy season and an epidemic happen together, as in 1839, when, during an epidemic, it rained almost every afternoon for nearly two months. On the other hand, when an unusual drought and a severe epidemic prevailed in 1837, it was argued in like manner, that the absence of rain for a like period (with the exception of a few showers) was the source of the evil.

CHAPTER XI.

SANITARY TABLEAU OF THE BUILDINGS AND TOPOGRAPHICAL IMPROVEMENTS OF NEW ORLEANS.

Buildings. How the style of building in New Orleans has so long escaped the legislator, the grand jury, the landlord and the sanitarian, is marvellous. About ninety in every hundred houses even in the richer portion of the city, are constructed in a manner that must be condemned in any climate, but in none so much as in this city, depressed as it is below the high water mark of the river almost every where, and in the rear nearly on the sea level. The lower floor, which rots about four times in ten years, in a great majority of the houses, especially the stores, rests on the humid soil, sometimes at a lower level than the streets, no air being admitted underneath!

Soil. The fresh water, newer pliocene, being largely mixed with decaying animal and vegetable matter, moistened by rains, and infiltrations from the river, gutters and swamps, generates perennial crops of *algæ*, *fungi*, *infusoria*, blight, mildew, mould, &c., which abound in, under and around the lower story of these unventilated houses, where, indeed, crops of mushrooms would flourish, were they not repressed by the tread of the tenant. Hence goods rust and spot, delicate colors are discharged; health, too, is deteriorated from moist and insalubrious exhalations during the day, and at night, as many persons sleep upon these decaying humid floors.

Fungi.

Physicians in visiting the poor, especially in depressed portions of the city, must have often found the flooring of houses floating, and sometimes, after rains quite covered with a water too filthy and offensive for description—laboratories for generating carbonic and other deadly gases, predisposing to disease, and rendering recovery from any kind of sickness tedious, too often impossible. What drug can supply the place of pure air, pure water, dry sleeping and business rooms?

The lower floors (on which the principal business of the city is done, and on which is stored the most valuable merchandise) resist decay but a few months, whereas the most perishable kinds of wood, and even cotton and linen fabrics, with their original colors, will, if kept dry, last for thousands of years, as witnessed in the tombs of Egypt, where the cerements of the dead are comparatively sound, while their coffins (made of sycamore, a wood that speedily rots, where moisture is present) are as sound as they were thousands of years ago, although they had been placed in excavations, often little elevated above the inundations of the Nile

It would appear from a cursory glance at many new business houses now going up in New Orleans, that instead of having one or two feet of free air circulating under the lower floors, the latter have been sunk to a level, lower, if possible, than usual.

In some cities deep cellars are dry. The depressed, inclined plane on which New Orleans stands, below the high water line—the river before, the swamps behind, subject to sudden inundations from enormous rains, all combine to prove that floors ought not to be placed directly on the mud, though in other cities this mode of building may be less injurious. In New Orleans it ought to be interdicted by law. It is to be regretted that the two conditions that ought to be most desiderated, are the most neglected—the two conditions most necessary to the preservation of health and merchandise, namely: elevation and dryness—drainage and the free circulation of air in and under houses.

Elevation and dryness.

Although the climate of New Orleans and lower Louisiana has been regarded as unusually humid, it might with more justice be viewed as being, for a considerable portion of the year, remarkably dry. Mr. Darby maintains that after the season of inundation, lower Louisiana is, for eight months of the year, drier than any woodland in America.* The desiccating process in New Orleans is naturally rapid, as might be anticipated from its almost constant breezes, elevated temperature, and great number of cloudless days. Were the swamp-zone cleared, ditched and drained, these conditions so favorable to evaporation under a powerful sun, would make the soil as dry as it is rich and productive.

Desiccation

Enough is already known of the science of Hygiene to warrant the conclusion that our crowding filth, a want of ventilation, incomplete drainage and humidity must be injurious to the health and detrimental to the physical comforts of the citizens of New Orleans. Healthy individuals and still more the sick ones need pure air, both when there is and when there is not an epidemic.

Hygiene.

Effectual under-ground drainage is, as it seems to me, scarcely a physical possibility in New Orleans—if possible, the expense could hardly be paid by the treasury of the United States, and if accomplished, it would prove to be an intolerable nuisance. A gentleman recently from Paris, and, perhaps, the ablest quarantinist in New Orleans, informs me that in Paris where underground drainage, with a soil elevation and declivity so vastly superior to New Orleans for this purpose, is mischievous. The Parisians find that the filth of the city accumulates in these subterranean sewers so as to send forth the most offensive and deleterious emanations. Hence, they prefer, after costly experiments, surface drainage, and wash off the filth into the Seine. One heavy rain in New Orleans would change this abstract theory into a concrete mass of filth, which would fill these subterranean canals, which, lying as they must, below the level of the river, and even below the level of the sea and lake, would send forth emanations strong, but not wholesome. These subterranean passages would afford a good living and secure habitation to the infusoria, algæ, conferræ; vast reservoirs of animal and vegetable organizations, good for microscopical investigation, but not fit to be smelled.

Under ground drainage.

The sewers (*cloaca*) of ancient Rome passed under the whole city; the *cloaca maxima* of Tarquin, was sixteen feet broad and thirty high, built of hewn stone, three miles long, one mile through a mountain a thousand feet high; the mouth of this sewer is still seen where it empties itself in the Tiber. These sewers, placed under the supervision of the *curatores cloacarum*, had under-ground side walks.

*Stat. La. 99, 100.

In the National Cyclopedia, (of London, 1851,) it will be seen that the sewers of this metropolis are four feet three inches high, by two feet three inches wide, to allow a man to pass through them for the purpose of inspecting and cleansing them; others are twelve to fourteen feet high. "The inclination of sewers should always, if possible, be sufficient to enable the water to run freely, and to carry off the solid matter that usually enters with it. In the metropolitan sewers the inclination varies from a quarter of an inch to an inch and a quarter in ten feet. It is some times very difficult to obtain a sufficient inclination to a sewer. The depth of the Watling street sewer is from thirty-three to thirty-five feet. In many cases, however, there is a space of not more than three feet between the surface of the road way and the crown of the arch of the sewer. Wherever it is practicable new sewers are built at a considerable depth from the surface." This would be particularly necessary in New Orleans, where there is much heavy drayage. Now let us see what is the fall from New Levee street, the highest part of the city, to Claiborne street, not to mention streets still more remote, yet on nearly the same level. Fall to Claiborne about nine feet six inches: suppose a sewer four feet six inches high, reaching within eighteen inches of the pavement or surface; the bottom of this sewer will then be only five feet above the level of Claiborne street, reckoning from New Levee, the highest of all streets—allow a fall of only half an inch for every ten feet, much of which is expended near the levee: the distance to Claiborne being 4,338 feet, the fall would be about eighteen feet; or if we adopt the London standard of one inch or one inch and a quarter (to scour off the filth) the fall would be thirty-six to forty-five feet, and if carried through the Metairie ridge, would average for the whole city a fall of about 90 to 145 feet, and to the lake 180 to 290 feet. Observe that the fall from the levee to Claiborne is all expended but about ten inches in the first half of this distance! and that even this terminus, in Claiborne, has been covered two feet deep by the lake during hurricanes, the water having reached within five or six squares of the levee, so that under-ground sewers would have been inoperative except along a narrow belt next the river. If the sewers were placed at the usual depth, the reflux water of the lake would have filled them up completely to their roofs! The bottom of a sewer at the ordinary depth in Claiborne, and in half of the streets of New Orleans, would be below the ordinary sea level! They would be little better than inaccessible reservoirs for collecting the filth and alluvium washed off from the inclined plane on which the city stands. Every heavy rain would deposit an immense amount of detritus, which, in the absence of a strong scouring current, would fill all the sewers with solid matter which would emit the most offensive odors.

Surface drainage.

By adopting the experimental instead of the verbal or paper method of drainage, and using a moderate amount of common sense, much digging, and a good deal of capital, just as the Dutch have done in Holland, by which the land has been wrested from the dominion of the sea, New Orleans and its environs as far as Lake Pontchartrain, might be changed from mosquito-lands and putrefying sheets of water, to horticultural, pasture and meadow lands. The almost uniform levels of this district near the lake is not without some compensating advantages, inasmuch as expensive gradings and deep cuttings for ditches will not be necessary. The elevations and inclinations of the Metairie ridge, may prove advantageous rather than injurious, in several points of view, in giving direction to the waters; while the natural plane on which New Orleans is built, has a sufficient inclination and prolon-

gation towards the lake to give a strong current to the rain water from the levee, as far as the cypress swamps.

With suitable lateral and lake levees or dikes, efficient draining machines, and ditches passing through and connecting the lowest levels, there can be no doubt, it may be repeated, that the swamp district lying between the already leveed river shore and the lake could be completely drained.

There is no part of this district which prevents difficulties, in surface drainage, St. Petersburg comparable to those met with in the under-ground drainage of the site of St. Petersburg, a city which was founded in the midst of deep and wide marshy forests, at a level so low that during storms it has often happened since 1715, as it did in 1824, that hundreds of lives were lost by drowning, ships having been stranded in the streets or dashed to pieces against imperial palaces, the inundations having covered the highest grounds in the city.

Peter the Great having visited Holland, where he witnessed the system of dikes and drainage in that country, determined to found another Amsterdam, though Amsterdam. in a most unfavorable locality. Amsterdam, once the most commercial city of the world, was, as all know, built on piles, on account of the depth of the marsh in which it was founded. The city hall, now the royal palace, constructed in 1648 rests on 13,659 piles, and a church recently built has nearly half of that number.

Peter having rejected piles, adopted a different and almost impracticable mode of draining the site of a city that should transmit his name to the remotest posterity, namely, under ground drainage. Instead of trusting to an abstract ukase, or act entitled an act, &c., he built him a little hut, in 1703, on the river Neva, between Lake Lagdoga and the Gulf of Finland, where, seven years after was built the first brick house, and where he sacrificed one hundred thousand lives, chiefly owing to his method of under-ground operations, the earth having often caved in, burying the workmen. Canal excavation with proper hygienic regulations, fortunately is not necessarily attended with unusual sickness. Before the epidemic broke out in New Orleans, from fifty to seventy-five men were engaged in excavating the great basin, 300 feet wide and from 8 to 12 deep, near the junction of the Bayou St. John and the canal Carondelet, a mile from the city, and a still greater number were similarly engaged at the junction of the bayou and Lake Pontchartrain, among whom no sickness appeared.

In several countries large lakes have been drained. Harlem, a navigable lake, Harlem Lake. almost as deep as lake Pontchartrain, fourteen miles long and nearly as wide, was but a few months ago disappearing rapidly, and will soon become a dry, fertile basin or plain, though it is still called in the maps of Reece's Encyclopædia "the sea of Haarlam," and all by means of one or perhaps two steam engines which pump out the water.

CHAPTER XII.

CONTAGION—INFECTION—MIGRATION.

There is no probability that any satisfactory conclusion will ever be established Explanations. as to the contagiousness of yellow fever or the contrary, so long as the words contagion, infection, miasma and the like, are used in a latitudinarian, vague and undefined manner. Contingent contagion, conditional contagion, occult changes, unknown predispositions or ever varying circumstances, as heat, rain, drought, swamps,

vegetable and animal decomposition, assumed emanations from the sick, and the like, are so mixed up as to afford ground for endless controversy. If one explanation or assumed condition shall fail, another is held in reserve to be called in to aid the wily logician in his extremity. The dry season of 1837 and the wet one of 1839 served at the time to explain two epidemics.

A word is, in an investigation of this kind, best explained by a thing, a type or example, as an unerring criterion, and not by another word equally vague and darkly enveloped with unessential, contingent, wholly unknown or ever changing hypothetical conditions. If the supposed contagion of yellow fever be by contact, as the itch, or by a volatile contagion, as in small pox, let it be tried by these typical or fundamental tests, and not by the assumption of one or many other contingent circumstances which may happen as coincidents, not causes, nor even invariable accompaniments.

Contagion. Contagion in its most literal and restricted sense implies the actual contact of a well person with a dead, or sick person, or his apparel, etc, by which a specific posion is transmitted from one to the other, reproducing a similar disease, as in small pox, cow pox, itch, etc. In a more enlarged sense, this term includes invisible emanations from the sick consisting of a specific poison, doubtlessly, dissolved or suspended in the air, and capable of reproducing a similar disease in any indefinite number of persons who come near the patient, of which small pox again affords the most complete typical illustration. Here the fundamental idea of contact is, perhaps, real, though unseen.

Proximity. Another type or criterion of contagion is this—it cannot act except within a very circumscribed space, in any season, latitude, or climate; it may be limited by isolation from, or non-intercourse with the healthy; its extension probably might reach from pole to pole, if all could be brought in proximity with a single sick individual, although the emanations from his body at a few feet from the same, mixing with the atmospheric ocean, become harmless, not epidemic.

Infection. The word *infection* generally used as synonymous with the word *contagion*, has, too often, played a conspicuous, if not a satisfactory rôle in the vague and inconclusive disputations of yellow fever quarantinists. If the word *infection* mean an emanation of a specific aerial poison from the sick, giving rise to a similar malady in the well, it must be precisely the same as contagion; but if it mean an impure air arising from an animal or vegetable source, or from both combined, then it is but another word for miasma, malaria or bad air. The labored attempts to explain this word—the bad faith in which it has been used—at one time for contagion, at another for the bad air of a sick room, a sick city, a vile scent, or paludian exhalation, go to show that it is a most perfidious word, the shibboleth of dialecticians—a word pregnant with mental reservations. It is the limbo of countless pamphlets, books, and laws upon yellow fever quarantine—the lumber of the last and present centuries.

If *infection* be used to denote the contamination of the atmosphere of a room, or of an urban district or focus, with or without offensive scent—an emanation from vegeto-animal decomposition, not an emanation of a specific nature from a sick man, which, in any climate, season, and latitude, produces a similar malady in the well, then the word becomes intelligible. Such contamination, however, does not originate a strictly contagious disease, though it may, and often does, aggravate the latter. Seclusion from sick persons does not ensure exemption, while the individual lives in the infected district. The locality, not the person, is dangerous.

Migration or flight, unless in the beginning of the epidemic, is of questionable

expediency, for many reasons. For although the chance of suffering an attack may be slightly diminished by leaving the city after the epidemic has become general, the chance of a cure in the city is increased. The excitement and fatigues of traveling are likely to develop and aggravate the disease. Migration.

The epidemic of 1853 has clearly proved that when the yellow fever zone is expanding throughout the Southern States, while the epidemic is steadily declining, so as to be nearly extinct, flight to New Orleans is a prudent measure. When the epidemic was marching upon the towns and villages of Louisiana, after its declination in New Orleans, many persons came to the city for protection, and to the discredit of the doctrine of contagion, escaped.

Early migration is an all-important measure. It would be too tedious to give even a summary of the multitudinous and striking examples furnished by the late Dr. Chervin, of the efficacy of migration, both in the peninsula of Europe and elsewhere. Dupuytren. Baron Dupuytren, in a report to the Academy of Sciences in Paris in 1825, says: "We regard as incontestible the principle of evacuating immediately the places where yellow fever is declared to be, and every thing for this purpose should be adopted. The utility of such a measure must always justify its vigorous execution." Thomas. Dr. Thomas, after thirty years' practice in New Orleans, from 1818 to 1848, declares* that he never saw or heard of a well established example of the communication of yellow fever to any person in the country by patients who had contracted the disease in the city during a visit while the epidemic was prevailing. The same exemption proved constant when unacclimated residents of the city who fled, but nevertheless sometimes sickened and died, or recovered in the country, after having lived in the same houses and slept in the same beds with the country people. Railroads.

The completion of the railroads now in progress will enable both the urban and rural population of Louisiana, at a small expense, to dodge yellow fever in almost the most literal sense of that term, by leaving the infected localities.

The most salubrious retreats during the summer season for the citizens of New Orleans, might be expected to be found in the pine region bordering upon the lakes and the Gulf of Mexico, notwithstanding the single exception of 1853. The late Dr. Drake gloried in these pine woods, as "the healthy localities"—"dense and lofty forests, presenting to the eye a vast system of intercolumniation, which, seen at night, by the running fire that occasionally consumes their shed cones and long leaves, with the dry grass among which they have fallen, presents a grand and striking spectacle. Such are the celebrated *Pine Woods*,* to the protecting influence of which the people of New Orleans and Mobile commit themselves for safety in yellow fever seasons, expecting to enjoy an equal immunity from intermittents and remittents."

Now, although these pine platforms are not beyond the reach of epidemic yellow fever occasionally, they are far more salubrious abodes in the heats of summer than the far off sultry cities of the north, which are every year overcrowded by southern absentees. The coniferous pines which lie at the doors of New Orleans, and which the good doctor, a lover of Nature, admired, are totally ignored by the lovers of fashionable saloons. What a pity that his account "of the people of New Orleans and Mobile" is not a true one!

* *Traité Pratique de la Fièvre Jaune observée à la Nouvelle Orléans*, Paris, 1848.

* A Mississippian says that in these Pine Woods, "It is too healthy to support a physician, too honest to need a lawyer, and too free from debt to furnish any salary to the clerk of a circuit court."

CHAPTER XIII.

THE HISTORY AND MYSTERIES OF QUARANTINE—CLASSICAL MODE OF ATTACKING EPIDEMICS.

Quarantine in Europe, established during and after the prevalence of the black plague, was enjoined under the penalty of death and confiscation; but it was found, after long trial, unavailing, as the pestilence returned repeatedly. The law required the patient to be taken out of the cities into the open fields, there to die or recover. No one under pain of death could visit the sick, unless specially appointed for the purpose. An individual coming from an infected district was put to death. Many articles of household furniture were burned, others were exposed to sun and rain for a specified time.

Law.

Forty.

If quarantine be not a fraud on the many, for the benefit of the few, it is at least a superstition devoid of any philosophical evidence in some of its most fundamental details—as for instance, in its mystical adherence to the number FORTY, adopted in the dark ages (1485) by Councils or Boards of Health, being a monstrous compound of medical, legal, and theological fancies, founded on the duration of the forty days flood; Moses' sojourn of forty days on Mount Sinai; Christ's fast of forty days in the wilderness of Judea, and the Lent fast of forty days in the church ceremonial. Hence the Italian *quaranta* from the Latin *quarantina*—forty days more or less—during which time persons, animals, goods, letters, and ships are interdicted, confined, restrained by *cordons sanitaires*, or lazar-housed to the scandal of a fast age, which chides the tardy movements of the locomotive and steamship, and is barely satisfied with the velocity of lightning, which brands with the word *fogy* every thing devoid of rapid progression.

Detention.

Old Britain is more progressive than Young America in quarantine. The voluminous report against quarantine, especially in reference to yellow fever, by the government committee of Great Britain, submitted in 1852, foreshadows the opinion of the forth-coming report against quarantine even for the plague. That report will show what measures “will supercede the necessity of those greivous interruptions to commerce and international intercommunication which quarantine, so universally imposed on account of plague, has hitherto occasioned.”

Since it appears that quarantine is soon to reign nominally, if not practically, in Louisiana, its rules and mysteries deserve to be studied and scrutinized, unless yellow fever can be banished by the mere vote of the majority in the two houses of Legislature. The Mississippi river can not be kept down by the act against inundations, nor raised by an act for the benefit of stranded steamboats. Pass from the abstract to the concrete—from the word to the thing—from theory to practice: What is to be done? Action! Action, only! Disinfect air, earth, skies, ships, goods, and humanity. On with the lustration.

“The most important and valuable method of disinfection is ventilation, and, whatever other may be added to it, this should never be neglected. The reputation of chlorine, acids, lime, charcoal, etc., as disinfectants depends on their property of decomposing the offensive gases which are so often mixed in the atmosphere with the matter of infection, but it is questionable whether they have any influence on the infectious particles themselves. However, as the emanations from putrid substances

Methods.

render the body peculiarly liable to the reception of infection, some of these means should be employed where any offensive smell is present. The best of these is chlorine, which may be applied in the form of the chloride of lime, which should be poured over any thing from which odor is emitted; it should be sprinkled about the floor and on the walls; or shallow vessels containing it should be exposed to evaporate in the air; or pure chlorine should be disengaged in the form of gas from the materials from which it is manufactured. Dr. Henry has rendered it probable, by numerous experiments, that the infectious qualities of substances which cannot be conveniently washed, as trunks, packages of valuable merchandize etc., may be sufficiently destroyed by exposing them to a dry heat of 200° for less than an hour."*

Heat.

As it was during the strict quarantine rule, at the close of the last and in the first decennial period of the present century, that yellow fever attained its cyclic culmination, it may be proper to give a summary of the quarantine laws of that disastrous era; and the more so as the same enactments seem to be desiderated at present. The following extracts from Assalini's celebrated work on plague and yellow fever, translated by Adam Neale, New York, 1806, have been kindly furnished by my friend Dr. Cartwright. "Quarantine Code of Marseilles, Toulon, Venice, Cadiz, &c. There are a lazaretto, lodgings, hospitals, and magazines at the quarantine ground. When a vessel arrives, the captain presents to the Board of Health his certificate where the vessel is from, the number of the crew and passengers, and the kind of cargo. This certificate is taken through a grating by a pair of long pincers, and is not read until it has been thoroughly perfumed and dipped in vinegar. If the certificate gives notice of the plague, the vessel is considered *brute* or foul. The passengers and ship's crew are strictly reviewed at a distance, and placed under quarantine. The merchandize is deposited in the enclosure in the magazine. The magazine at Marseilles, for this purpose, is very beautiful. The passengers are put into the enclosure, with one or more guards of the committee (*comité sanitaire*), while the ship's crew remain on board. The porters and purifiers of the merchandize open the bales of cotton or wool in the middle, and thrust in their bare arms. They break open the chests and trunks, and expose to the air the bales, &c., &c. After having exposed every thing, night and day, for thirty-nine days (*sérène*), and after having perfumed the passengers and ship's crew three times they are permitted to enter the harbor. If, during the quarantine, any one falls sick and dies, the quarantine is prolonged or recommenced. If sickness and deaths continue, the laws of health condemn the vessel to the flames. Those who compose the crew, after being stripped of all their clothes, and *having their whole bodies shaved* and washed in sea water, are admitted into the lazaretto. The vessel, with its merchandize, is towed to sea, where it is either sunk or committed to the flames. If any of the porters or purifiers get sick and die, the laws of health pronounce the goods infected, and they are burnt.

Assalini.

Code.

Cereimonial.

"1st, Contaminating; and 2d, non-contaminating cargoes.

"1st. Cotton, wool, silk, furs, &c., contaminating.

"2d. Paper, stuffs and samplers, gold and silver ware, glass, not contaminating. Such things are cleaned by perfuming or putting in water or vinegar.

"Herbs, fruits, and flesh of animals are non-contaminating, and can be purified by putting in water."

* National Cyclopædia, vii. 470—1. Lond. 1851.

"Experience has proved that these seclusions, or shuttings up, have never succeeded in arresting the progress of the plague. This disease always commences by attacking the poor in the most unwholesome quarters of the city; after which the health of the inhabitants in good circumstances become impaired, and at length death levels indiscriminately the poor and the rich. The season changes and all at once the epidemic ceases.

"The Franks, residing in Egypt, to guard against the plague, shut all their doors and block up with care the smallest holes until St. John's day eve. The cats of the family are shut up in cages, like fowls, and if, unfortunately for them, they chance to leave their prisons and make their escape, on their return they are killed without mercy, according to the sanitary laws. Near to the gate of the house are placed three large earthen vases filled with water, a bason with vinegar, a furnace with coal, some odoriferous herbs, antipestilential powders and pastes, iron pincers, a large knife, and other utensils. Each family has a domestic who is not comprised in the shutting up, and who is employed to transact all commissions. He comes every morning with the necessary provisions he has bought at market. The porter, who is the steadiest member of the family, and the most strict observer of the sanitary laws, after being reconnoitered, the domestic descends with the key, opens the door and retires. The domestic enters the court, puts the provisions, such as meat, fruit, fish, herbs, etc., into the vases full of water; the money he puts into the vinegar. Papers, bills of exchange, etc., he puts near the furnace and retires. The porter then shuts the gate. Then having taken in his hand a magic ring, he stirs the meat, fish, herbs, etc., in the water. He then takes the money out of the basin of vinegar, and having lighted the coals, he throws on them some perfumes. He then takes the papers with the pincers and places them over the furnace two hours in the smoke. Sealed letters are purified by piercing them with a stiletto in two or three places and dipping them in the vinegar."

During the black plague in Europe, the merchants carried their money into the churches, depositing it at the foot of the altars, and, returning home, calmly departed this life. The priests dared not touch the golden heaps for fear of *contagion*! (Ozanam. Hist. Méd. iv. 87.) How can a sincere contagionist dare to touch New Orleans bank notes?

The late Cyclopædia of London says that "letters coming from and passing through the plague countries *are opened* and fumigated at the lazaretoes." The affairs of war, love, politics and speculation might be damaged by the *opening of letters*, independently of the detention. In Oriental realms where a belief in fatalism is prevalent, a quarantined man submits to a resistless destiny, in preference to the knout, the bastinado, the bowstring, an impalement or a fusilade.

Boisseau.

M. Boisseau, of Paris, in his work on fevers, says that "before and since quarantine was established in France, yellow fever has not appeared, although the communication has been frequent between the ports of Spain and France. This disease fortunately having never reigned epidemically in our country, it cannot be decided whether we have been preserved by quarantine or by circumstances independent of all human intervention."

France.

French quarantine, (as good as any,) is, in many of its features, founded on assumption wholly unwarranted by positive knowledge or probable truth. The *patente* or certificate of health given by consuls to vessels leaving port has several distinctions, as the *patente nette* showing that the vessel leaves a country unsuspected

of infection; the *patente brute*, for which quarantine is required on one coast from ten to thirty, on another fifteen to forty days. The *patente suspecte*, from a country not altogether free from suspicion, requiring from five to twenty days quarantine on one coast, and from ten to thirty on another; the *patente brute* varies from ten to thirty in one place to fifteen or forty days in another, as if there was the smallest proof that these numbers are better than half or ten times the numbers specified.

The theory that something must be done to arrest epidemics has been, is now, and ever will be popular. When, twenty-five centuries since, epidemics began to ravage Rome, the worship of Æsculapius was introduced into that city, with the view of preventing pestilence.

Brutus, the Roman Consul, more than twenty-three and a half centuries since, sent an ambassador to Delphos, to consult the oracle how the plague, then epidemic at Rome, might be stayed. Had he organized a Howard Association, like that of New Orleans, with a treasury of 1,200,000 *denarii* for distribution for nurses, medicines, food, and medical attendance, himself taking an active part in the work of charity, he might have done the city some service, without calling in the aid of imaginary oracles.

Epidemics ravaged Rome in the years 451, 432, and 396, B. C., whereupon pestilence was again attacked vigorously by the ceremonial called *Lectisternium*, or funeral banquet of the gods, instead of adopting the obvious remedies, like those of the New Orleans Board of Health, in 1853, that is the establishment of temporary infirmaries, the appointment of physicians, nurses, and funds for the poor. A terrible pestilence began in Rome, 293 B. C., which, having lasted three years, was attacked by a sort of sanitary commission, consisting of ten ambassadors, who, instead of looking at home for causes or explanations, or sick people in distress, went on a journey to Epidauris, in Greece, the natal city of Æsculapius, near which the god of health had a most magnificent temple.

This sanitary commission having gone up a valley five miles from the city, reached the famous temple always crowded with invalids and priests or doctors, implored the aid of the Epidaurian god. They brought back to Rome the god himself, under the figure of a serpent—a highly valued prize, which, how much so ever it may have delighted the Romans for a time, failed at last, as the plague returned twenty years afterwards with augmented virulence. This sacred snake, placed in a temple built on an island of the Tiber, disappeared among the reeds on the shores of that river.

It is highly probable, however, that the worship of Æsculapius was beneficial in Rome, and would prove so in New Orleans, inasmuch as it requires as preparatory measures, sobriety, fasting, bathing, tranquility, and the like, in order to fit the mind and body for divine intercourse, visions, dreams, and therapeutic revelations. Neither Æsculapius nor his lovely daughter, Hygeia, Goddess of Health, is worshipped in the usual abodes of yellow fever, typhus and cholera, where whiskey, bad air, humidity, crowding, irregular hours and the neglect of cleanliness are substituted for the Æsculapian rites, and no act of the Legislature can change this condition of things, how potent so ever may be its language.

CHAPTER XIV.

QUARANTINE AND CONTAGION CONTINUED, WITH ILLUSTRATIONS.

Contagion.

At the beginning of the present century and for some years after, the yellow fever element was so mingled with the great concerns of humanity, that it excited the public mind to an unexampled degree; in the cabinet and in the field, in the legislative halls and in medical schools, both at home and abroad, in the colonial governments. It had long been the conqueror of armies and navies, and now threatened to desolate the peninsula of Europe. Its contagiousness was a leading topic on which reports, pamphlets and books went forth, raging like the epidemic itself. Neutrality was scarcely possible in a matter so deeply involving the interests, passions and transactions of humanity. Opinions founded on mere hypothesis concerning the cause of this malady which remains to this day unknown were not for that reason less, but even more positive and dogmatic. Affidavits and affronts, certificates and satires, logic and duels,* personal contagion and personal invective, bad air and worse legislation, divided the professional and non-professional public on this question. The non-contagionists, however, greatly outnumbered their opponents. They, for the most part, controlled the legislation of the States of the Union, by their efforts or their arguments. But no sooner were they off their guard than the contagionists appealed to the fears of the public, and urged the legislature to do something for the protection of the people, by making laws against the importation of yellow fever, whereupon new laws were often enacted with no effect in this behalf. The anti-contagionists, like Sisyphus, must roll the stone perpetually—then, now, evermore. Now is the favorable moment in New Orleans, just after the great epidemic. Something must be done. Formerly, nearly all the worst epidemics in Louisiana, and particularly in the peninsula Europe, took place under the strictest quarantine régime. If quarantine goes into effect now, a new era will probably have commenced. For, upon the doctrine of chance or probability, no such severe an epidemic may occur for a generation, and quarantine, if such a thing were really practicable, will not be slow to claim the credit; but if 1854 should be no better than its predecessor, then yellow fever quarantine will be for the hundredth time repealed, and yellow fever will be attacked in a more scientific way—

Contingent logic.

Oriental logic

first by doing no harm, and next by sanitary measures within the narrow range of the human understanding. An eastern monarch taught his subjects that the sun rose only at his command, but he always gave the command at the proper time, that is, *sun rise*.

Village logic.

Contagionists have during this, as well as during all former epidemics, collected facts to prove their theory. A pedlar, from an infected district, arrives in a town—his pack is opened—he, the family, and many of the villagers die of yellow fever. Exactly the same occurrences (which are mere coincidences,) take place a hundred times, where there has been no pedlar—no box of goods opened—no travellers from the infected districts. In one town, a crate of crocks from New Orleans is said to have been the medium of transmitting contagion to the village; but at that very time nearly all the other towns for 500 miles around were falling under the malign

*In some cases both parties, the contagionist and the non-contagionist were killed.

influence of the epidemic. It would be most extraordinary if crates, boxes, passengers and pestilence should never happen to get together—not as causes and Co-incident effects—but as coincidences, necessary in the ordinary course of business. If the pestilence got into town before the arrival of a bale of goods, the former did not cause the arrival of the latter. If the man who opens the goods dies of black vomit, together with all his family, a hundred other families take the disease without any such apparent exposure, and die in like manner. A planter fences up his grounds, and secludes himself, family, and slaves, and all escape; another does the same thing, and all are attacked.

The great majority of the learned in Europe attributed the black plague to the conjunction of Saturn, Jupiter, and Mars on the 24th of March, 1345; just as many now attribute the late epidemic to events that happen to coincide in time and place. Astral logic.

Those not irrevocably wedded to contagion, might find it useful to study the events which have passed before their eyes within the last seven years. Home logic.

The late Mexican war furnishes the most complete refutation of the contagiousness of yellow fever in the absence of quarantine, so far as negative evidence can go. If the United States Government had tried to devise an experiment, on a vast scale, to ascertain whether yellow fever could be propagated by ships and armies, it could not have achieved its purpose more effectually. In 1846-7-8, this malady existed in Tampico and Vera Cruz, and was very severe in New Orleans in 1847. The troops and the material of the army, leaving New Orleans for Vera Cruz, and Vera Cruz for the interior of Mexico, did not suffer themselves from yellow fever, nor spread contagion through the towns and country. In 1848, thousands of the returning soldiers passed through Vera Cruz in June, where yellow fever existed, and on reaching New Orleans in July and August, a few died out of fifteen thousand who remained in the city and its environs some time, without communicating any disease to the city by means of their goods, army materials, and selves. Thousands thus, without having been quarantined, remained in the city for a time, and quitted it for their homes, in other towns and places, without having communicated the disease to any one. After the reduction of Vera Cruz, yellow fever appeared, and many invalids and sick persons were sent to New Orleans and other places for treatment, in the transports which carried out the troops, yet they did not propagate the disease any where. Thus at least fifty thousand experiments made in Tampico, Vera Cruz, and New Orleans, not to name other places, produced no proofs of personal or other kind of contagion, though in both the first named places yellow fever prevailed moderately among residents not acclimated.

The Board of Health of New Orleans, in an official announcement, shows, that for the month beginning with the 26th of November, 1853, that 6,707 passengers from foreign parts, chiefly emigrants, had arrived at our wharves in forty-seven sea-going vessels, by the river route. Now, if we add the number which had previously arrived, to the number which has since arrived from sea, the aggregate will scarcely fall below 10,000, while by other routes, chiefly by the river, the emigrants, absentees and other unacclimated persons, as the steamboat population, coming to the city, in September, October, November and December, forty thousand more may be added, making fifty thousand—fifty thousand living experiments against possible contagion—fifty thousand exposures to all of the possible sources of contagion—the houses, goods, etc., of persons recently dead, including emanations from the sick and dying,

during the decline of the epidemic and during the whole of this period—all proving harmless!

Rio de Janeiro

If the yellow fever be contagious or transportable, why has it not been carried beyond the tropic of Capricorn during centuries of active intercommunication? Why did it appear only *North* of the Equator, with two or three exceptions, always near the line, until 1850, when it traveled for the first time to Rio de Janeiro, which however is within the tropic?

Such vast, yet significant experiments quite overthrow those few cases where the opening of a box or bale of goods is followed by yellow fever—mere co-incidents not causes. There is not the least reason to think that the world, combined for the purpose, could create an epidemic yellow fever, or even a single case in any city street, or house, upon the globe.

The enlightened governments of Europe, whose inter-tropical possessions enable them to judge from large experimental intercourse, have not only gradually lost confidence in quarantine as a preventive of yellow fever, but they oppose it as altogether mischievous—at least such is the case in Great Britain. Quarantine in our own country is nominal, illusory, and never comes up to the theory of real quarantine. The deception is, therefore, less mischievous than an honest enforcement would be.

The provisional assumptions of contagion, seclusion and quarantine in yellow fever, once altogether proper and wise anterior to experimental tests, are now no longer such. In the hour of despair and ignorance, the theory that the building of a large city in a country where earthquakes and volcanoes prevailed, would prevent them, might be tolerated until after a fair trial. But, if experience prove that earthquakes continue as before, the building of cities for this purpose should not continue.

If faith is best proved by works, the contagiousness of yellow fever in New Orleans falls to the ground; because, in practice, it is disregarded both by the acclimated and the unacclimated, inasmuch as doctors, nurses and neighbors visit the sick in the freest and most fearless way, and with equal impunity with those who keep at a distance from the sick. Experience shows, both in hospital and private practice that proximity to the sick does not enhance the danger to one living in “the infected district.”

In the rural districts and in the towns where fear was great, and experimental knowledge of the fever little, the people adopted a different line of conduct—the principle of seclusion and non-intercourse. The traveler, denied the hospitalities of the house because he had merely passed through an “infected district” or village, wandered along the road seeking shelter in vain for the night. Towns suffered for want of provisions, because their rural neighbors feared to approach the sick. Sometimes *depôts* were established near these self-beleaguered towns, where the sick or their attendants and families went for supplies and thereby escaped starvation. The artillery placed at the landings and wharves, threatened to send grape and cannister shot into boats and vessels that dared to approach from infected districts. Individuals, as well as towns, carried out the principle of seclusion, and were alike unsuccessful.

Although the quarantine party is to a great extent composed of men of the highest integrity, talent, patriotism and disinterestedness, yet it is feared that some who profess quarantine loudest are, at heart, infidels; if they are sincere they are

Ultima ratio
regum.

not consistent. By what code of morality can they justify themselves in dispensing with quarantine in any case like the following example taken from the Daily Delta, of September 13th, 1853? Capt. Baxter's statement as given by the Editor:

"Captain Baxter left here [New Orleans,] with the Cherokee on the 12th August last, when the epidemic was at its height, with one hundred and sixty-nine passengers, the majority of whom were unacclimated, and liable to the yellow fever. During the voyage, there were ten of the crew down with the fever, and on the arrival of the Cherokee in New York, there being two still sick, they were ordered into the hospital, where one of them died; the other recovered."

Were the crew, and passengers, (without mentioning the ship and cargo) kept 40 days in the Lazaretto, undergoing fumigation? Not at all. Captain Baxter adds:

"They were all permitted to land in New York after eighteen hours, and the sick members of the crew were alone compelled to go into hospital detention."

Such a quarantine is but a kaleidoscopic illusion. If the New York authorities entertained the belief that yellow fever *is contagious*, they would not, in this strongest possible case of importation, have wilfully exposed the lives of half a million of people, unless they are worse than pirates themselves. Their acts more than their words, show that they have no belief in quarantine as a preventive of yellow fever. The same infidelity is obvious in the actions of the few contagionists in New Orleans. They no more avoid yellow fever patients than they do rheumatic patients, or charity. They are better than their doctrine.

As yellow fever appeared in New Orleans at an unusually early period of the season, and long before its invasion of other towns in the Southern slope of the Mississippi valley, the town authorities, in many cases, imposed quarantine laws for their protection, early in August, as Natchez, Baton Rouge, etc. No exemption—great mortality—neglect of the sick—and other evils followed,—some of which grew directly out of quarantine itself, and were by no means creditable to humanity. While experience shows that quarantines do not prevent yellow fever, they do prevent free intercourse with the sick, nursing, attendance, and the physical comforts, by which the disease can alone be combatted with the greatest success. Fortunately, however, humanity is usually stronger than quarantine in practice; non-intercourse, seclusion and abandonment, which quarantine directs, or necessarily implies, are too revolting to the moral sense to be practiced towards friends, neighbors and relatives, and consequently, in yellow fever, these not being carried out in practice, quarantine will always be violated, until morality and charity shall be extinguished.

If quarantinists are sincere they ought not to export any cotton (one of the articles in which contagion is most easily transmitted) because the contagion is in the city every year. A learned physician of New Orleans, Dr. Simonds, has published a table showing the annual per cent. of mortality in the Charity Hospital from yellow fever, in every year for thirty years, ending with 1849—so that the stream of yellow fever, with whatsoever of contagion it may possess, is uninterrupted, no year having been wholly exempt in this institution, not to name the city at large. (Dr. Fenner's Reports, i. 123.)

If New Orleans contagionists succeed in getting the city and State governments to establish the contagiousness of yellow fever by a special act, let the same act forbid the exportation of cotton, even to our enemies, in time of war. In time of peace, it would be still more unjust to send infected cotton to the subjects of her

Britannic Majesty, or to the subjects of the Emperor of the French. It would be still more criminal to export cotton and contagion to Philadelphia, New York, Boston and other cities, as a return for their opulent donations to yellow fever sufferers during the late epidemic.

It may be said that a contagionist, how sincere so ever he may be, is not bound to care for his neighbor's interests and health; but honesty requires him to care for both. It is doubtful whether the English Minister was strictly moral when he declared that he "cared for England and English interests *alone*." The same dubiety hangs over Commodore Bainbridge's toast—"My country if right, but my country right or *wrong*."

If yellow fever be contagious and transportable, quarantine ought to be enforced by grape and canister, gibbets, prisons and fines, though commerce should perish altogether. The late Dr. Townsend, who was a consistent, honest and able quarantineist, says, in his book on the yellow fever of New York, as it appeared in 1822: that all intercourse with the West Indies [and why not with New Orleans?] should be prohibited for five months in every year, beginning with June, in order to prevent the importation of yellow fever. [229.] He says, that "unless an unbroken line of lazarettoes be established along the whole coast, to guard against the pestilence; we can never hope to be entirely secure. What will avail the most efficient system of quarantine laws, established here and there in a few cities on the coast, if all the intermediate towns, with which a constant intercourse is going on, freely admit vessels, etc." [231.]

If quarantine is to reign in New Orleans, let it be as rigid as in the Levant. For no Eastern mummery can be more absurd than that practiced at the quarantine stations of the United States at the present time. The strictness of the East has both consistency and reason in its favor, (admitting the doctrine of contagion,) which cannot be urged in favor of the West. A doctor of some Atlantic city of the Union goes on board of a ship from New Orleans—the plague stricken city—he looks at the cotton bales, and the passengers, and he straight way ignores his own theory, his oath and the law; for in a few minutes or hours after, the vessel is admitted; no one being able to know how he could possibly have ascertained by a look, whether contagion was or was not in the vessel. If yellow fever quarantine be well founded, such conduct is murder by the thousand.

If the laws of the land and of nature have established the fact of the importability of yellow fever by means of persons and merchandise, and if quarantine be necessary to prevent this importation, then quarantine never can be dispensed with by a look or a whim; that is, the laws of nature cannot be changed in this way.

The future.

While Æsculapians have no special gift of foretelling which will, and which will not be an epidemic year, history furnishes presumptions, analogies, and deductions, more or less favorable to the future in New Orleans, even though the next few years should be as insalubrious as the past. Epidemics have not only a limited period of increment and decrement in any one year, but they usually have more prolonged periods of increment and decrement, through series of years, often constituting what may be called a cycle of variable duration, after which they generally cease. So it was with the plague in Europe; so it was with the yellow fever in the Spanish peninsula; so it was with the cities of the United States in the north, as Boston, New York, Philadelphia, Baltimore, and other places. Its invasion of the Southern

tropic at Rio, so recent and severe, together with its gradual decline in the North temperate zone, may be the precursors of its further Northern declination, and Southern advance, so that both Charleston, Mobile, New Orleans, and other Southern towns and districts have now, at least, the same probabilities in favor of approaching exemption that many other cities further North had, more than half a century ago, before yellow fever appeared on the banks of the Mississippi. New Orleans is now, and has long been, near the Northern border of the yellow fever zone. If yellow fever has, as may be the case, reached its culminating point in this city, its history elsewhere in the temperate zone indicates a progressive decline.

Charleston, desolated at the close of the seventeenth century, was nearly exempt from yellow fever in the first quarter, and in the two last quarters of the eighteenth century. New York was exempt for forty years, ending in the last decennial period of the same century—a period longer than the exemption, of which the present forms a part—the prolongation of which may be suddenly arrested for anything that human foresight or science can show to the contrary. The history of the past affords no guarantees that its scenes shall never be repeated. It is as idle to deny as to predict this lamentable contingency. It is consoling to reflect that the plague as well as yellow fever has almost entirely left Europe, and that the latter disease is scarcely known in the Atlantic States of the republic. No thanks to quarantine! If any visible causes can be assigned for this exemption, the most probable are the extensions of knowledge in hygiene, physiology and physical or sanitary improvements. Thanks to science!

CHAPTER XV.

THE ENS EPIDEMICUM—THE KNOWING THAT ONE DOES NOT KNOW—THE OVERTHROW OF EPIDEMICS.

The public desires and receives with alacrity facts and arguments explanatory of the causes of yellow fever, and, hence almost every writer on this malady, whether born to solve this problem or not, thinks it his bounden duty to satisfy the public, and to glorify science, by conceiving clearly and revealing fully what no one thoroughly acquainted with, both the amount of our positive knowledge and deplorable ignorance of these essential antecedents or causes, can pronounce upon with certainty. A humiliating but true confession this is. Heat, rain, moisture, swamps, vegeto-animal decomposition, contagion and numerous other alleged causes are unsatisfactory and inadequate, as might be shown by travelling over hundreds of inconclusive and contradictory volumes, filled with special pleadings, diluted logic, theoretical biases, and irrelevant facts. The mere authority of great names in science satisfies many—names which serve to guide the multitude, as the bell wether guides his willing, faithful sheep, all of which will jump just as high as he jumps even after he has knocked the fence flat on the ground.

It is most certainly the duty of every writer on yellow fever to explain the cause of it if he can, but it is equally his duty not to sin against the decalogue of logic, any more than against the decalogue of Moses. Fortunately the *conditions*, if not the *causes* of yellow fever are to a considerable extent known: for example,

Felix qui potuit rerum cognoscere causas.

it is known to be connected, no matter how, with the warm season of the year, with unacclimated constitutions, with aggregations of people in towns and villages, etc. It rarely attacks rural populations unless they crowd together so as to become virtually towns.

A correct appreciation of these conditions is next in importance to the discovery of the cause of yellow fever—probably the former may prove after all to be more important; for the discovery of the cause, by no means warrants the conclusion that it is necessarily a removeable or a remediable one. The seeds of plants taken from Egyptian mummies contain the vital principle after the lapse of thousands of years and will grow when the proper conditions shall be present, as heat, moisture and earth, while the vital cause is in the plant. It is therefore a fundamental error to require a writer to explain the *ens epidemicum*, or to receive the alleged doctrine of contagion as the only alternative, when he cannot show what the cause *is*. Do not, say the sciologists, overthrow, unless you can build up.

It is better to acknowledge ignorance than to advocate an error. It is better to keep a question of this sort open than dogmatically to close it against investigation. In the former case the truth may be discovered; in the latter, never. To know ignorance is preferable to ignorance of ignorance. To know, that as yet, we do not know is the first step to be taken. Despair is not philosophical. The possible, who can limit it? If the cause of yellow fever has not been discovered, it may yet be. If discovered, whether within or without the body, it may, or it may not be controllable. If it should never be discovered any more than the cause that produces on the same soil a poisonous and nutritive plant, it is probable, that at least its essential conditions and laws may be ascertained so as to afford advantages and protection equal to those derivable from the discovery of its true cause or combined causes. All the lessons of philosophy teach that yellow fever *has* a cause or combination of causes, without which it cannot appear—with which, it cannot fail to appear, being not the less certain, because unknown in the present state of science. Its antecedents and sequences must prove, when known, as invariably connected and simple as any part of physics.

Ens epidemicum, smoked and cannonaded.
Fires.

The practical method of attacking the *ens epidemicum* or epidemic entity is no more satisfactory than the theoretical,—as the enfiling the streets with artillery, the combustion of tar, or the smoking of the enemy out of a place. Dr. Rush and others enumerate such examples. The plague left London, they affirm, as soon as coal was introduced into the city as fuel. Now the part of New Orleans most affected by yellow in 1853, was the very part most afflicted by coal smoke, namely, near the St. Mary's Market, where the foundries of the city are concentrated, as Leed's. McFee's, McCan's, Armstrong's, etc. The burning of gunpowder, and artillery firing in the streets and public squares have sometimes been followed by the retreat of the *ens epidemicum*—just as the eating of a salt herring was followed by the recovery of a Frenchman and the death of an Englishman, from fever. The patriotic Board of Health, of which the philanthropic Mayor was chairman, had done all that was possible to stay the march and to mitigate the evils of the epidemic—scraped the streets—lustrated the gutters—provided for the sick—buried the dead, and wisely quarantined the influx of the *uninfected* immigrants,—they had done more;—for they gave their personal attendance to the sick and dying; in the midst of the crisis, the public mind swaying to and fro like the storm-stricken forest, they yielded to the prevailing opinion. At sun-set the epidemic was regularly, for a time, attacked

with great guns. But gunpowder failed. It did worse. Sleep to the sick is the turning point for life—the first glimmer along the dark horizon of the yet dubious morning—sleep was broken—the intellect vibrating between reason and delirium, shattered by the clangor of arms and fever, raved with redoubled violence, and was sometimes quenched at once by a horrid convulsion amid the roar of cannon.

Among the numerous plans advocated by many, was that of tar-burning. This, too, was tried. But the epidemic raged the more. Terror was supreme.

Large fires were kindled in London to destroy the Plague in 1665: "Dr. Hodges says, Heaven wept for the mistake of kindling them and mercifully put them out with showers of rain." In the town of Wheeling, enormous coal fires were kindled in the cholera of 1833. They had no other effect than that of causing one to think (during the nightly round of visits to the sick) how uncertain human life is. Their unsteady flickering lights are significant of the deadly march of cholera.

"The air extricated from fermenting wines, during a plentiful vintage, Van Carbonic acid Swieten tells us, once checked the ravages of the plague in Germany."

"Ambrose Parey says the plague was checked in a city in Italy, by killing all the cats and dogs in the place and leaving them to putrefy in the streets."

A fourth part of the population of Europe was falling before the Black Plague. The Jews had been charged with causing the epidemic with a view of destroying all Christians from the face of the earth. They were massacred without mercy, though sometimes tried by commissioners: a writer of that time says, "certain commissioners have been appointed to judge the Jews; I believe none will escape."

In France the Medical Faculty of Paris assembled in order to find out the causes and devise sanitary measures to arrest the progress of the epidemic. The doctors, after due deliberation, in a most solemn official manifesto, or medical bull decided in the most positive manner that the epidemic was "owing to the constellations which combatted the rays of the sun, and the warmth of the heavenly fire which struggled violently with the waters of the sea, originating a vapor in the great Eastern sea of India, corrupted with fish, enveloping itself in fog. Should the same thing continue *not a man will* be left alive, except the grace of Christ preserves him. We are of opinion that the constellations, with the aid of nature, strive, by virtue of their divine right, to protect and heal the human race, and to this end, in union with the rays of the sun, acting through the power of fire, endeavor to break through the mist." The faculty at the same time predicted in the most oracular manner the future movements of the aforesaid constellations: "Accordingly, within the next *ten* days, until the 17th of the ensuing month of July, this mist will be converted into a stinking deleterious rain, whereby the air will be much purified. Now as soon as this rain announces itself by thunder or hail, every one of you should protect yourself from the air; and as well before as after the rain, *kindle a large fire* of vine wood, green laurel, wormwood, chamomile, etc. Until the earth is again completely dry, and *three* days afterwards, no one ought to go about; only *small* river fish should be used; rain water must be avoided in cooking; bathing is most hurtful, and the least departure from *chastity* fatal."

Fires.

Putrefaction.

Isrealites.

Parisian Faculty.

CHAPTER XVI.

MORALIZATIONS UPON THE EPIDEMIC OF 1853.

It is doubtlessly wisest not to wed a mournful philosophy. The illusions, as the realities of life are mingled with good as well as evil. Horace, La Fontaine, and Byron have spoken despondingly of the mission and the hopes of humanity:

"Vita summa brevis spem nos vetat incohare longam.

Quitter le long espoir et les vastes pensées."

"Know that whatever thou hast been 't were better not to be.

There's not a joy this world can give like that it takes away."

Such inconsolable knowledge not being derived from the dreams of the novelist, nor from the fictitious woes personated by the tragedian, is not only unrelieved, but augmented by imagination, by the anticipations of impending danger during the rapid march of a desolating epidemic, which prostrates hundreds of friends and neighbors in a day, and, like the flash from the tempest-bearing cloud in a starless night, discloses to survivors the perilous rocks upon which the bark of life may be broken in a moment by the fast gathering storm of death.

The bloodiest battle-fields of modern times scarcely can compare with the New Orleans epidemic of 1853, which destroyed five times more than the British Army lost on the field of Waterloo. There were among the people those fluctuations of hope and fear which armies feel amid the shocks of battle, founded on chance and destiny:

*"There's a Divinity that shapes our ends,
Rough hew them how we may."*

"The ball on which my name is not written, cannot hit me, says the soldier in the field of battle—and how, without such belief, could he maintain such courage and gayity in the most imminent peril."

The moral consequences attributed to epidemics a few centuries ago, are so discreditable to humanity as to appear almost incredible, and certainly do not appear in the present age. The accounts transmitted to us concerning the black plague, which appears to have resembled yellow fever in many respects, show that demoralization raged equally with the epidemic;—all the ties of friendship, of blood, of morality and of religion were dissolved, or merged into brutality, sensuality and licentiousness. [Ozanam. Hist. Méd. iv. 87.] The world must have grown better. Nowhere, least of all in New Orleans, is such a sad picture of humanity seen as having any connection with epidemic visitations;—instead of demoralization, benevolence illustrates the dreadful march of death, and sheds its sunshine upon the closing scenes of life—the supreme hour of dissolution.

The deplorable scenes of demoralization which medical historians have portrayed, as occurring in former times, had their origin, for the most part, in the fear of contagion, which led to the abandonment of the sick, and reckless conduct, under the belief that contagion and death would soon arrive.

The most hideous fictions were propagated in distant cities concerning the conduct of the citizens of New Orleans, during the epidemic which has just completed its orbit. A Journal, published in an Eastern city, where yellow fever once

prevailed, but now happily exempt, holds the following, as well as still more objectionable language, concerning New Orleans, in 1853: "Doomed city of the dismal swamp, abode of death! Immense charnel house. * * * Those who are safe, who have been enveloped in the plague-sheet, and have been set loose armored against a future attack—eat, drink, and are merry, almost persuaded of immunity from all disease, since preserved against that which is the most dreaded of all. * * * * Cheeks not blanched by the proximity of ! " *la mort inexorable.* * * * Hear other hammers than those battering down coffin-lids. * * * Carriages pass and repass not belonging to the funeral *cortege*. The drivers of hearses are not more lugubrious than draymen and porters. 'I'm safe—I've had it,' etc. The "*safe*" portion of the population, instead of having been indifferent to the sick, or devoting themselves to balls, operas, and theatrical amusements, as represented by those misinformed journalists, devoted themselves to the well-being of the afflicted and poor.

The wind which blows out a small taper, kindles up a large fire among more substantial materials. In New Orleans the fire of charity burned but the more brightly as the storm of pestilence augmented. In these days of mourning, disaster and death, the only pleasure in which the citizens actively engaged, was the melancholy one of attending on the sick, of soothing the dying, and of closing the eyes of the dead. Many, very many availed themselves of the opportunity to perform these offices of charity, quietly, steadily, devotedly!—

Charity.

"Like as a star,
That maketh not haste,
That taketh not rest,
Was each one fulfilling
His God-given Hest."—GOETHE.

If New Orleans has not the credit abroad, for having deported herself nobly, and conformably to the highest requirements of sacred humanity, amid the exigencies of a terrible calamity, it is owing to misrepresentation, and not to a lack of merit. She may more easily excuse the undeserved reproaches of distant strangers misled by false rumors, than some ungrateful recipients of her kindnesses at home. But silence is not less meritorious than positive beneficence.

The shades of death have just gathered over at least 8,000 yellow fever victims in New Orleans! *Eight Thousand!* A brief enumeration, yet it contains volumes of wretchedness—long annals of bereavement, of widowhood, of orphanage—full of unutterable griefs, solitude, destitution—sad Souvenirs of the Past! Cheerless preludes to the *sombre* Future.

There is something ineffably melancholy in reviewing the fate of a large class of strangers, whose names and fatherland none knew. The poet has sought by the presence of friends to soothe the dying—

"On some fond breast the parting soul relies,
Some pious drops the closing eye requires."

But many died unwept and unknown. Their coffins piled up two or three tiers deep like wood, were carted to the grave in the cypress plain—

Receive them, unrelenting Grave!—

"Strong are the barriers round thy dark domain—
And fetters sure and fast,
Hold all that enter thy unbreathing reign.
"In thy abysses hide
Beauty and excellence *unknown*; to thee
Earth's wonders and her pride
Are gathered, as waters to the sea."

Contrasts.

The earth, air, and sky seemed to be in the midst of the pestilence; such as Goethe described, which appear in the strongest contrast, when humanity is desolated:

"Know'st thou the land where the pale citron grows,
And the gold orange through dark foliage glows?
A soft wind flutters from the deep blue sky,
The myrtle blooms, and towers the laurel high.
Know'st thou it well?"

"O there with thee!
O that I might, my own beloved one, flee!"

Yet, in the midst such scenes the Angel of Death poured out the phials of his wrath. Coffin rumbled after coffin; the funeral columns defiled almost constantly for months from every street

"To join
The innumerable caravan that moves
To the pale realms of shade."

Sun-set.

As the day declined the funeral march became dense, continuous, and often blended. It was then that nature was serenest, while the sun was sinking into the cypress forests, his slanting rays dying with variegated hues, the trembling waves of the river, recalling to mind the sublime descriptions of Scott and Goethe; the first relating to a tropical sun-set, and the second one in the temperate zone:

"No pale gradations quench his ray,
No twilight dews his wrath allay;
With disk like battle target red,
He rushes to his burning bed,
Dyes the wide wave with bloody light,
Then sinks at once—and all is night."

"See how the green-girt cottages shimmer in the setting sun! He bends and sinks. Yonder he hurries off and quickens other life. Oh! that I have no wing to lift me from the ground, to struggle after, forever after him! I should see, in everlasting evening beams, the stilly world at my feet,—every height on fire,—every vale in repose,—the silver brook flowing into golden streams. * * * I hurry on to drink his everlasting light,—the day before me and the night behind—the heavens above, and under me the waves."

Poetry of the
pestilence.

These contrasts between the beauty and repose of nature, and the march of death, gave rise to several poetical contributions, which were cut short in some cases by "the pest-king," whose power they were recording—the muse, trailing her fast-failing wings in the polluting streams of blood and black vomit:

—————"All hoping is past!
The black draught of Death is ejected at last!"

So reads one of the unfinished black vomit poems of 200 lines, by a physician who died of the *vomito*, which he sung.

Another says:

"The sun sinks down o'er each death-crowded street,
Whilst dread, delirious screams the hearing greet;
Night settles o'er with awe and fear and gloom.
What means yon glaring blaze, yon cannon's boom?
Ha! victory's tokens for the conqueror Death!
Who slays his thousands by the fever's breath!"

Night.

Night was ushered in, for a short period with cannonading, and, for a considerable time with conflagrations from burning tar, the towering flames of which, cast a sickly, flickering light among the streets, upon the river, and into many a delapidated window upon yellow, rigid corpses, awaiting interment on the morrow.

CHAPTER XVII.

TABLEAU ANTE-MORTEM AND POST-MORTEM.

Although I have not witnessed the romantic novel reading, love making, and merry doings of yellow fever patients at the very close of life, as described by several writers in Mobile and New Orleans, yet I have seen many examples in which the more sober pursuits of business, and plans for the future, were discussed by sane persons but a few hours, or even only minutes, before death. Dr. Cartwright, in his account of the epidemic yellow fever at Natchez, in 1823, says that "in the last stage, in which *fever* in its etymological sense of the term disappeared and all severe pain, the patient, before debilitated, often regained his strength so far as to be able to walk about the room. When there was no evident cause for these two symptoms they invariably portended a fatal termination. A shoemaker, the day before death, got out of bed, went to work, and nearly finished making a shoe." (Med. Rec.) He says that in the hospital four or five patients, in the last stage of the disease, acquired great strength, left their beds, got brooms and the like, and after parading through the rooms, died suddenly.

M. Robin, in his travels in Louisiana, from 1802 to 1806, mentions the case of a physician attacked with yellow fever, who unconscious of any sickness, continued to attend his patients until just before death. When interrogated, he declared he was in good health (*fort bien—fort bien*); while others died in rapture (*dans le transport*).

There is probably no violent, acute disease less painful than yellow fever, although there is none scarcely more repulsive to the beholder, as seen in the black-vomit, in enormous hæmorrhages from the mouth, nose, ears, eyes, and even the toes; the eyes prominent, glistening, injected, yellow, and staring; the face discolored with yellow and dusky red.

Without trenching too much on professional ground, let us approach the yellow fever corpse and throw off the winding sheet so as to expose the face, chest and arms. The poets, true to nature, have often found in the physiogomy or anatomical expression of the dead, much beauty—

"Lips bland and beautiful"—

"Eyes

So fair, so calm, so softly sealed

The first, last look of death revealed."

"It has been observed," says Professor Dickson, "that the countenances of those killed by gunshot wounds are usually placid, while those who perish by the sword, bayonet, pike, or lance, offer visages distorted by pain, or by emotions of anger or impatience."

Eckerman closes his "Conversations with Goethe," the great poet of Germany with the following tableau of his dead body:

"The morning after Goethe's death, a deep longing seized me to look yet once again upon his earthy garment. His faithful servant, Frederic, opened for me the chamber in which he was laid out: Stretched upon his back, he reposed as if in sleep; profound peace and serenity reigned in the features of his noble, dignified

countenance; the mighty brow seemed yet the dwelling-place of thought. I wished for a lock of his hair, but reverence prevented me from cutting it off. The body lay naked, only wrapped in a white sheet; large pieces of ice had been placed around, to keep it fresh as long as possible. Frederic drew aside the sheet, and I was astonished at the divine magnificence of the form. The breast was so powerful, broad and arched; the limbs full, and softly muscular; the feet elegant, and of the most perfect shape; nowhere on the whole body a trace either of fat or of leanness and decay; a perfect man lay in great beauty before me; and the rapture which the sight caused made me forget for a moment, that the immortal spirit had left such an abode. I laid my hand on his heart—there was a deep silence—and I turned away to give free vent to my tears.”

The physiognomy of the yellow fever corpse is usually sad, sullen and perturbed; the countenance dark, mottled, yellow, livid, stained with blood and black vomit, and swollen; the eyes prominent and blood shot, and yellow. The veins of the face and of the whole body often become distended, and various and very curious phenomena may be discovered upon a closer inspection,—a few of which may be enumerated on this occasion;—among these is the circulation of the blood, which, independent of the heart, seems to be in some few cases, as active as in life. The following example selected from many will illustrate this new fact:

The experiments began twenty-five minutes after death, and continued one hour and thirty minutes, the history of which fills ten pages; from these the following extracts are taken: A thermometer remained in the armpit 55 minutes; the first five minutes gave 105° ; five minutes $106\frac{1}{2}^{\circ}$; five minutes 108° ; ten minutes 108° ; ten minutes 108° ; ten minutes 108° ; ten minutes $108\frac{1}{2}^{\circ}$; pelvic region seven minutes 111° ; five minutes 111° ; five minutes 110° ; stomach $109\frac{1}{4}^{\circ}$, chest 107° , etc. Great distension of the veins. A ligature was placed on the arm, a vein was opened, about two ounces of blood jetted out, after which a trickling took place for a considerable time, amounting, by estimation, to twelve ounces. The circulation was found to be very rapid about the head; (the patient had died suddenly with apoplectic symptoms;) the skin of the face and neck was injected, dark, livid and somewhat mottled, there was no cadaveric hyperæmia or injection of the dependent parts; the external jugular veins were distended as if ready to burst. Greater tension I had never witnessed in glottidian œdema, nor in convulsions, nor in the last throes of parturition. The left jugular was opened, as for ordinary bloodletting, *but no bandage or pressure* was used, the head being raised, so that the orifice was nearly on a level with the breast bone. The blood jetted completely, without wetting the skin, forming an arch, the diameter of which, continued to extend for five minutes; at the end of eight minutes the arch had contracted, owing, apparently to small clots on the margins of the orifice, and the skin having once become wet, the blood, without being materially diminished, ran down the neck, jetting occasionally on removing clots from the orifice. For about one hour the flow was copious, but, at the end of that time, was diminishing rapidly. I caught nearly three pounds at first, but as much of it did not jet out, but ran down the neck, I could only estimate the amount (which I did) at five pounds, or eighty ounces from the jugular alone. As the bloodletting progressed, the congestion and discoloration of the skin of the face diminished.

Now it will be seen, that the orifice in the jugular did not discharge the blood as fast as the circulation replaced it—there was a surplus, because, the venous ten-

sion or jetting augmented for five minutes, and had not ceased during eight minutes. There was, as already mentioned, no bandage or pressure. It is fair to presume, that it would be quite impossible in this way, to bleed a living man, half as much, as collapse of the vein, clots, fainting, etc., would prevent it. Hence, the circulation in the veins was probably more active and persistent, than in health! Let it be supposed that the upper or *distal* end of the jugular, contained one ounce, when opened—this being discharged, no more could replace it, only by a circulatory force. But here, the tube is filled eighty times in a few minutes.

The heat of the patient in the early stage of yellow fever is usually very great, but it falls off towards the close of the disease, in both the convalescent and dying stages; but, among the dead, in many cases, it rises higher than in life, from a quarter of an hour to six or seven hours after death, rising (sometimes to 113°) and falling in the very same and in different regions both internally and externally. The laws of this heat do not fall under those belonging to physiological, morbid, physical, or chemical caloric, as now recognized in these sciences; they constitute, therefore, a separate branch of thermotics entirely new. This heat, after death, is not peculiar to yellow fever subjects. Nor are the following phenomena: Let an arm of the corpse be straightened out at a right angle to the body and be slapped with the operator's hand or a piece of board, in the proper place, between the shoulder and elbow, whereupon the corpse will continue, in many cases, at intervals for hours, to raise its arm from the floor through the vertical, from which the hand descends to the upper surface of the trunk, generally resting on the breast, or face, being sometimes sudden like a blow or slap. From one to five-pound weights are thus raised, if tied in the palm, and carried to the breast. The palm thus loaded cannot return to its original or extended position without aid; but if replaced, will repeat its motions, as proved by many hundred experiments which would fill more space than this memoir.

The following summary of these facts, so far as published, is so compendious, that I beg leave to give them, from a recent work "on Life, Sleep, Pain and Death," by Professor Dickson, of Charleston, an author who for scholarship, and voluminous contributions to Medicine, occupies the first rank in our literature:

"The researches of Dr. Bennet Dowler, of New Orleans, have presented us with results profoundly impressive, startling, and instructive. He has, with almost unequalled zeal, availed himself of opportunities of performing autopsy at a period following death of unprecedented promptness, that is, within a few minutes after the last struggle, and employed them with an intelligent curiosity and to admirable purpose.

"I have said that, in physiological death, the natural decay of advancing age, there is a gradual encroachment of death upon life; so here, in premature death from violent diseases, the contrasted analogy is offered of life maintaining his ground far amidst the destructive changes of death. Thus, in cholera asphyxia, the body, for an indefinite period, after all other signs of life have ceased, is agitated by horrid spasms, and violently contorted. We learn from Dr. Dowler, that it is not only in these frightful manifestations, and in the cold stiffness of the familiar *rigor mortis*, that we are to trace this tenacious muscular contraction as the last vital sign, but that in all, or almost all cases, we shall find it lingering, not in the heart, anciently considered in its right ventricle the *ultimum moriens*, nor in any other internal fibres, but in the

muscles of the limbs, the biceps most obstinately. This muscle will contract, even after the arm with the scapula has been torn from the trunk, upon receiving a sharp blow, so as to raise the forearm from the table.

"We also learn from him the curious fact, that the generation of animal heat, which physiologists have chosen to point out as a function most purely vital, does not cease upon the supervention of obvious or apparent death. There is, he tells us, a steady development for some time of what he terms "post-mortem calorificity," by which the heat is carried not only above the natural or normal standard, but to a height rarely equaled in the most sthenic or inflammatory forms of disease. He has seen it reach 113° of Fahr., higher than Hunter ever met with it, in his experiments made for the purpose of exciting it; higher than it has been noted even in scarlatina, 112° , I think, being the ultimate limit observed in that disease of pungent external heat; and far beyond the natural heat of the central parts of the healthy body, which is 97° or 98° . Nor is it near the centre, or at the trunk, that the post-mortem warmth is greatest; but, for some unknown reason, at the inner part of the thigh, about the lower margin of its upper third. I scarcely know any fact in nature more incomprehensible or inexplicable than this."

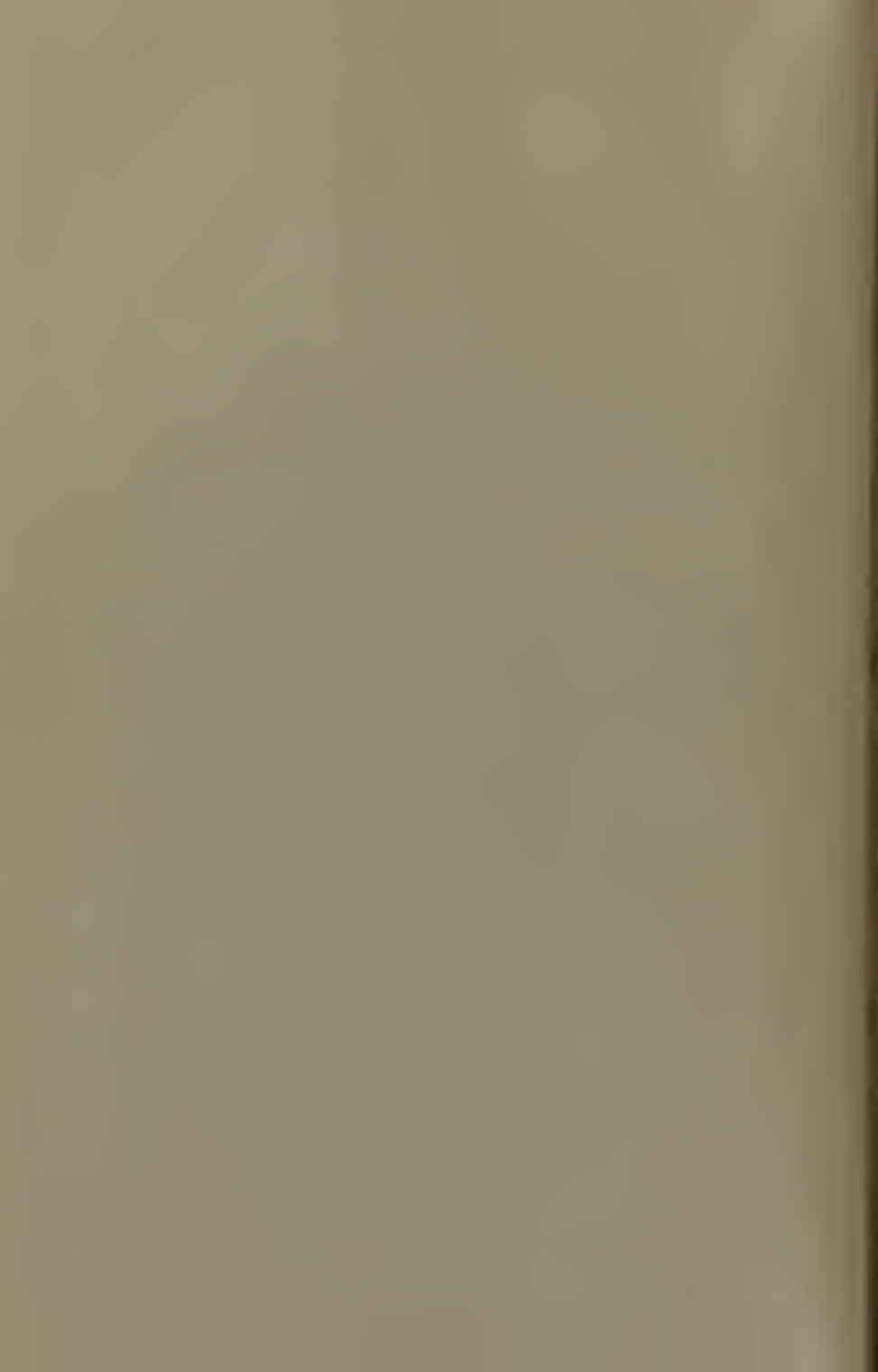
Independent of experience, the physiologist cognizes no inherent necessity in life itself, nor in any of its organized forms of manifestation, nor in any of its structural adaptations and finalities, for a catastrophe so melancholy—so repugnant to the instincts of humanity, as death. Indeed the analogies of the material universe wherein stability reigns, or varies only in constantly recurring cycles, seems to teach that man, for whom all things appear to exist, is, what his irrepressible instincts claim, immortal—exempt from death! The stars rise undiminished as on the morning of the creation, and "pursue the even tenor of their way" through infinite space. The earth, a little scarred on its face by volcanic eruptions and accidents, is undecayed by age, "spins silently onward with spheres which never sleep;—her unwithered countenance being as bright as at creations' day." Trees live thousands of years, and some fishes for centuries. The inferior animals neither foreknow, nor apprehend impending death at every step in life. This unpleasant secret is made known to man alone. A current, he can no more resist than the unfortunate boatman caught by the descending rapids of Niagara, hurries him over a precipice into a realm as tenebrious, (after all the researches of mere physical science,) as that into which the fabled Styx debouched in the days of antiquity.

Poets and philosophers have sought to bring out in the foreground pictures more cheering, so as to veil the sombre tableau of death in the distance.—Bryant's picture is one of the most pleasing:

"So live, that, when thy summons comes to join
The innumerable caravan, that moves
To the pale realms of shade, where each shall take
His chamber in the silent halls of death,
Thou go not like the quarry slave at night
Scourged to his dungeon; but sustained and soothed
By an unfaltering trust, approach thy grave
Like one who wraps the drapery of his couch
About him, and lies down to pleasant dreams."

With unsurpassed beauty, La Fontaine calls death the evening of a fine day:

La mort est le soir d'un beau jour.



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